

COMPUTERWORLD

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Pay up big to ride AD/Cycle

Base start-up fees minimal, but full configuration will cost millions

BY ROBERT MORAN
CW STAFF

Large organizations that fully embrace IBM's recently announced applications development strategy may be making a foray into unknown territory, but analysts said they can expect one known quantity — a multi-million-dollar investment.

In announcing its applications development environment — a suite of products and strategies labeled AD/Cycle — IBM claimed that companies can start implementing it for as little as

\$15,000. This cost includes a single IBM Personal System/2 and a development tool available from either IBM or one of its business partners.

Analysts and observers agreed with IBM that the initial investment will permit organizations to experiment and, later, build toward a complete system, but IBM has so far shied away from articulating the mammoth expense that will likely be required to fully realize the promise of AD/Cycle.

It may not have to, according to George DiNardo, executive

vice-president of information management and research at Mellon Bank NA in Pittsburgh. According to DiNardo, organizations not only can but will "purchase one IBM PS/2 and some software and let the whole package prove itself."

Nevertheless, corporations that choose to fully embrace AD/Cycle "have to anticipate an AD/Cycle expenditure of about \$2 million divided between the workstation and the mainframe," said Alan Prenoveau, vice-president of technology and

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Allstate hands CIO good spot

BY CLINTON WILDER
and ALAN J. RYAN
CW STAFF

Indicating the importance of information systems to its business, Allstate Insurance Co. went outside the firm last week for the first time — and outside the insurance industry — to hire an executive to run those operations, placing him at the top tier of the executive ranks.

William H. Sitter, the top IS executive at Northwest Airlines and one of several who resigned last week in a management shake-up, will receive a place on Allstate's board of directors, an exceedingly rare position for an IS executive.

Sitter, 49, who will report directly to Allstate Chairman Wayne E. Heden, was named Allstate's senior vice-president of information technology and chief information officer, effective Oct. 13. Currently, Allstate's highest ranking IS executives are assistant vice-presidents. Sitter will be based at Allstate's Northbrook, Ill., corporate headquarters.

In another senior shift last week, Chevron Information Technology Corp. promoted its former chief of telecommunications to the top post of president. Shell Oil Co. also had a recent change at the top of IS, with Lane E. Sloan named to the new position of vice-president of finance and information services, consolidating the jobs of two veteran executives who retired.

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Bank tallies mainframe yield

BY ROBERT MORAN
CW STAFF

In an era of downsizing and outsourcing, First Fidelity Bancorp, Inc.'s view that bigger mainframes yield maximum benefits seems to go against the tide of conventional wisdom. But by next year, the mid-Atlantic banking giant will have consolidated 11 data centers into two with a dramatic reduction in the number of mainframes employed and an annual savings of \$10 million.

Parent company of both First Fidelity Bank NA in Newark, N.J., and Fidelcor, Inc. in Rosemont, Pa., First Fidelity Bancorp has grown through 24 acquisitions from \$400 million in 1956 to \$30 billion in assets after the two banks merged in June 1987.

Of the 11 data centers and 17 mainframes that the company ran 18 months ago following the merger, four cen-

ters with six mainframes are left. By the middle of next year, the company will have two centers, each running an IBM 3090 Model 400S mainframe under IBM's Enterprise Systems Architecture.



"We have been shutting down a facility every 4½ months and have taken a mainframe out about every 3½ months," said Gary Provo, executive vice-president of in-

formation systems. During the next five years, the company

Continued on page 8

IBM raises stakes in PC bus race

BY PATRICIA KEEFE
CW STAFF

NEW YORK — IBM last week warded off the forthcoming rival to its Micro Channel Architecture bus with enhancements — on paper only, for now — and a strong come-on to third-party developers.

Rushing to take attention away from the upcoming Extended Industry Standard Architecture product rollouts, IBM unveiled bus master chip sets, developers' tools and extensions

to its MCA technology, which it claimed will significantly boost MCA's data-transfer rate as much as eightfold and speed development of bus master cards.

By most estimates, there are about 1,000 MCA cards available today, with significantly fewer bus master cards offered. The lack of evidence that MCA provides technical innovations has hampered further MCA card development, according to Computer Technology Research Corp. — hence IBM's decision to dangle the following carrots before reluctant board makers' noses:

- Two new modes of data transfer — 32- and 64-bit Streaming Data Procedures — said to deliver as much as an eightfold increase in the rate of data transfer, initially to 40M and 80M byte/sec. and eventually to 160M byte/sec. The Streaming

Data approach will also enable IBM to cut subsequent data transfers to 100-nsec intervals after an initial transmission at 200 nsec. This effectively doubles the basic transfer rate for

Continued on page 6

COMPUTERWORLD INTERVIEW



IBM VP Armstrong

Despite the frenzied pace of technological innovation, IBM's new technology chief says, "You ain't seen nothing yet!"

In an exclusive computer industry interview, John Armstrong, IBM's new vice-president of science and technology, discusses Japanese competition, U.S. education, future technology directions and Big Blue's drop from first to eighth place as a worldwide producer of patents. See In Depth, page 71.

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JACK COOPER
CSX TECHNOLOGY

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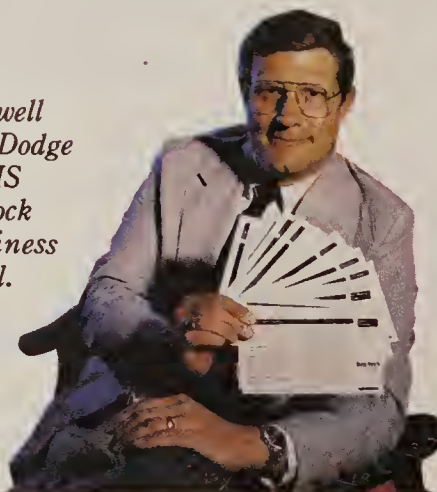
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UPDATE

ear of ejection. Job-search specialist Robert Half International recently sought the No. 1 cause of anxiety for executives at the top 1,000 U.S. firms. The answer, by a better than 2-to-1 margin over the No. 2 response, was losing one's job because of a merger or acquisition. It was listed by 54% of those polled. Half International speculated that the second-place anxiety, burnout, listed by 26%, is greatly influenced by the M&A phobia. Other fears listed included failure to get a promotion or a raise, insufficient income to meet living standards (likely a prominent response in the Northeast and California), illness and hair loss — though the latter wasn't listed specifically.

Bill Crowell at F. W. Dodge believes IS can unlock new business potential. Page 63.



PHOTOS BY ANDY FREEBERG
Software Engineering co-owners Andrew Blencowe and Sal Simeone are revving up their company to catch rival CA. Page 79.

EXECUTIVE BRIEFING

■ **Ignore the sticker price**, because the actual cost of a full commitment to IBM's AD/Cycle development environment is more than 100 times the \$15,000 price tag for a bare-bones configuration. To move a fully usable AD/Cycle into an existing IBM DB2 shop could cost \$2 million, according to an analysis of IBM's recent product announcement. **Page 1.**

■ **Partnerships in information management** won honors for retailer K Mart and the government of Singapore last week. K Mart, which is saving \$200 million per year through effective use of technologies such as bar-code scanning, personal computers and a satellite network, and Singapore, which pioneered an electronic data interchange system for import/export trades, collected the Society for Information Management Partners in Leadership awards. **Page 104.**

■ **Information systems organizations** can — and should — play an active role in helping their companies enhance and expand current business activities. Sharing knowledge between IS and business units produces the sparks that set off new business initiatives, including new product and service development. However, this outlook is a big change for IS, and IS managers must develop a new sense of risk-taking first in themselves and then among their staffs. **Page 63.**

■ **There is a scarcity of qualified network managers.** A new institute at Carnegie-Mellon University and the recent decision by Merrill Lynch to outsource its communications both reflect that shortage. The field offers career opportunities but calls for wide-ranging technical knowledge and the ability to help manage a major enterprise. **Page 86.**

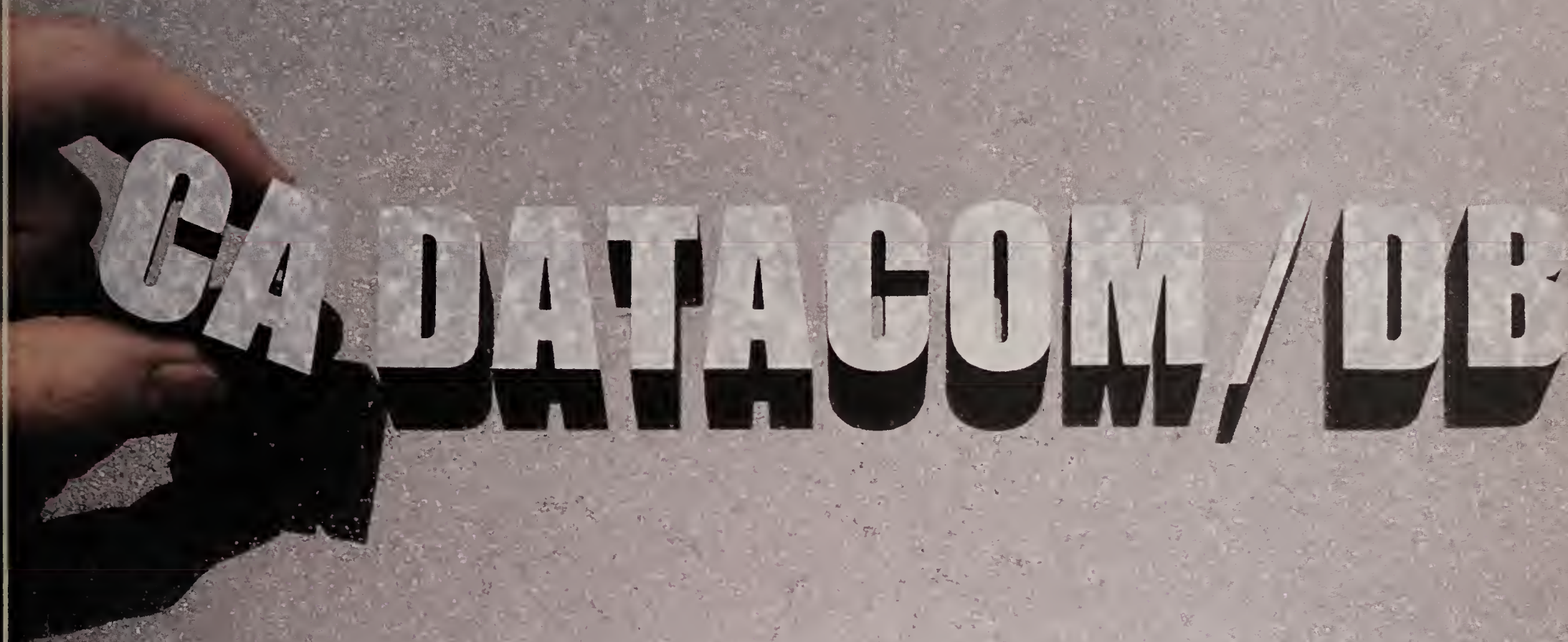
■ **Talk about the intangible benefits** of information technology all you want, but you still need hard numbers to justify expenditures in today's business world, according to some prominent IS executives. **Page 57.**

■ **Allstate Insurance** went outside the company for its new top IS executive, snaring William H. Sitter, formerly of Northwest Airlines. Meanwhile, at Chevron Corp., the promotion of the IS subsidiary's President Martin Klitten to the top corporate financial job takes effect this week, as does William Houghton's move from general manager of the communications group

to Klitten's former post. Also, Shell Oil Co. named Lane E. Sloan to the new position of vice-president of finance and information services. **Page 1.**

■ **The National Institutes of Health** computer center is under fire from six of IBM's competitors for what those other computer companies claim is an NIH bias in favor of IBM. The vendors recently filed a complaint with NIH's parent organization, the U.S. Department of Health and Human Services, charging that NIH has a long-standing pro-IBM bias in major contract awards. **Page 83.**

■ **On Site this week:** Hughes Aircraft smooths personal computer and computer terminal service wrinkles by adapting a maintenance management package. **Page 39.** IS can claim its place in National Public Radio history by helping NPR turn itself around from the threat of bankruptcy to its most secure position ever. **Page 25.** Speaking of history, high-tech IS features such as fiber-optics work in the background as they support the daily operations of Colonial Williamsburg. **Page 57.** Tossing aside their traditional independence, several PepsiCo divisions see the chance to slash their telecommunications budgets in half through a collective deal with U.S. Sprint Communications. **Page 47.** Doing its own comparison shopping, retailer Service Merchandise found it could predict telecommunications costs by moving to a VSAT network. **Page 47.**



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DEC delivers a sneak peek inside VAX 9000

BY JAMES DALY
CW STAFF

CUPERTINO, Calif. — Although Digital Equipment Corp.'s VAX 9000 mainframe is not due until later this month, DEC began revealing tasty tidbits of the upcoming machine last week with the introduction of a semiconductor packaging technique that doubles the performance of conventional circuit boards and takes up far less space.

The High Density Signal Carrier (HDSC) resolves "some of the key limitations in the development of high-performance systems" and will serve as a building block for a new generation of DEC machines, said DEC Vice-President Bob Glorioso.

Glorioso said the HDSC

clears up two problems that have long troubled semiconductor users: While chips have become faster, the circuit boards holding them together are too large and generate too much heat.

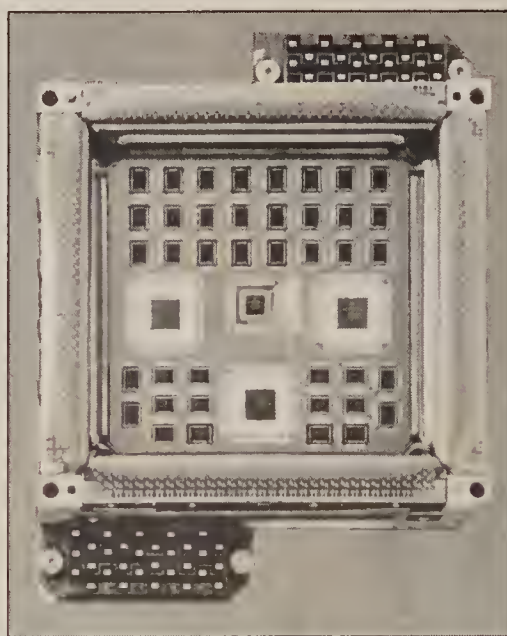
The fundamental advance involves the use of new materials and manufacturing techniques, which are used to link the chips and make possible a much denser chip interconnection.

The HDSC is composed of copper and insulating layers of a compound material called polyimide. It is mounted inside a Multi-Chip Unit (MCU) and is similar in concept to a printed-circuit board.

Although the HDSC measures only 5 in. on one side, it can hold up to 72 very dense chips. In this way, logic devices can be placed closer together, thus al-

lowing the signals to reach their destination faster.

Despite its compact size, the HDSC provides more processing



Multichip unit will serve as a building block for new DEC machines

power than the four conventional 12- by 15-in. boards that power the VAX 8800 line, officials of the Maynard, Mass.-based com-

pany said.

Glorioso added that the new technology generates so little heat that it can be air-cooled, rather than relying on more costly liquid cooling methods.

"It's a very important addition because it will place their new mainframe up against the low- and midrange of IBM's 3090 line," said Omri Serlin, president of the Los Altos, Calif.-based research firm Itom International, Inc.

Manager of systems software engineering John Manzo compared the technology to "cramming all of the roads of the Eastern Seaboard into midtown Manhattan" with no loss in efficiency.

The HDSC and MCU are the result of six years of work at DEC's Cupertino research facility.

Sun, Apollo race to roll out FDDI

BY ELISABETH HORWITT
CW STAFF

MOUNTAIN VIEW, Calif. — Sun Microsystems, Inc. and Hewlett-Packard Co.'s Apollo Systems Division bumped heads last week, racing to be first out with direct interfaces between their workstations and 100M bit/sec. FDDI networks.

But the two rivals may be ex-

nection, or as a gateway that links other types of local-area networks to an FDDI backbone. Both products are said to interface to both rings in FDDI's dual-ring architecture, allowing users to set up alternate redundant paths to safeguard against workstation and network outages.

Up until now, the ANSI fiber-optic networking standard has been used primarily in backbones that connect multiple Ethernet or Token-Ring LANs, rather than as a direct connection between workstations.

Test it out

Before users start demanding direct FDDI workstation connections, they will need about a year to "test the concept" and gain confidence that different vendors' FDDI products will interoperate, according to Allen Kasiewicz, a vice-president at Salem, N.H., consulting firm Trellis Communications Corp.

A multivendor demonstration of Transmission Control Protocol/Internet Protocol-FDDI interoperability that is scheduled for the Interop 89 conference to be held in San Jose, Calif., this week represents one move in this direction.

Users are also waiting for the price drop that should come when the FDDI market matures and when "IBM shows its hand," Kasiewicz said.

Sun's FDDI/Dual Attach Controller (FDDI/DX) ties directly to the VME bus of a Sun workstation, which can then talk directly over an FDDI network or interface multiple Ethernet LANs to an FDDI backbone, Sun said. The product is priced at \$12,500 and will be available in

60 days, according to Sun.

Apollo's FDDI controller board is initially available only on the Series 10000 personal supercomputer, although Apollo has tentative plans for migrating FDDI down to its smaller workstations, according to Apollo senior product manager Paul Rando. Apollo and HP also plan to offer FDDI as part of their merged workstation product

line, Rando said.

A Series 10000 workstation equipped with the FDDI board can link up to four Ethernet or Token-Ring networks to an FDDI backbone.

A bypass switch feature is said to regenerate the network signal even when the workstation is down. Scheduled to ship in April, the board has not yet been priced by Apollo "because we're expecting the [FDDI] chip pricing to come down soon," Rando said.

Management role

Sun announced last week its long-awaited network management system, which it claims will be able to manage a multivendor network via industry and de facto standards.

Sunnet Manager is said to be based on the Simple Network Management Protocol (SNMP), which will enable the system to manage Transmission Control Protocol/Internet Protocol (TCP/IP) networks, including Sun's TCP/IP-based Network File System.

The need for centralized network management tools from Sun is becoming critical at Deere & Co. as its network grows more complex, according to Tom Hein, manager of technical support at Deere Tech Services. Sunnet Manager's current support of TCP/IP, with future Open Systems Interconnect (OSI) migration plans also announced last week, fits in with Deere's own strategy for managing its heterogeneous network installations, Hein added.

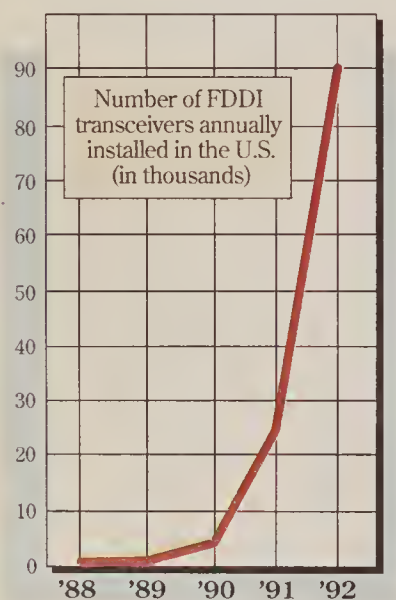
Sunnet Manager has been positioned as an element manager in the OSI hierarchy, able to manage subnetworks on its own or to act as a liaison between a variety of networking devices and centralized "managers of managers" such as IBM's Netview and AT&T's Accumaster Integrator, according to Lawrence Garlick, vice-president of distributed systems at Sun.

Initially, Sunnet Manager will interact with the growing number of networking products that incorporate an SNMP agent, Garlick indicated. Scheduled for shipment in the first quarter of next year, Sunnet Manager will be available on Sun's Scalable Processor Architecture, Sun-3/60 and Sun-3/80 systems, priced at \$10,000 for a single copy of the software.

ELISABETH HORWITT

High-fiber diet

Installations of FDDI transceivers are projected to gear up in 1991



SOURCE: KESSLER MARKETING INTELLIGENCE
CW CHART: FRANK C. O'CONNELL

aggregating the need for haste in their introductions, given that the Fiber Distributed Data Interface (FDDI) market is not due to take off for at least a year, according to Newport, R.I., research firm Kessler Marketing Intelligence (see chart).

Both Sun and Apollo's FDDI introductions are said to allow a workstation to act as either a server, with a direct FDDI con-

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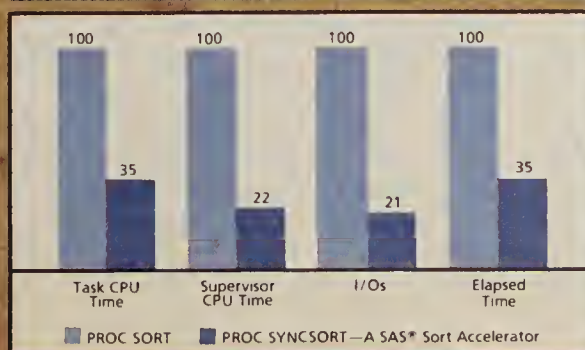
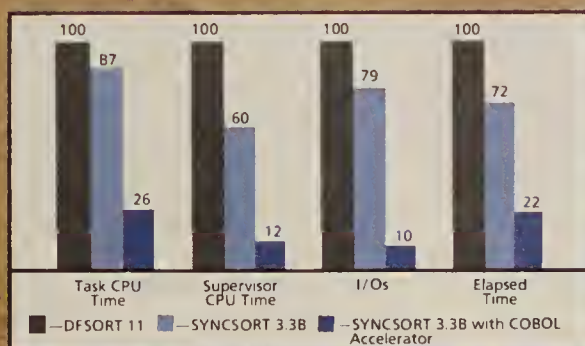
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With or without you

BY ROSEMARY HAMILTON
CW STAFF

With no word from IBM on the status of its new high-end disk drive, users are now moving ahead without it. In some cases, short-term storage plans are likely to exclude IBM entirely.

"It has to be in a viable state by the end of the year," said Jack Cooper, president of CSX Technology, the information systems arm of CSX Corp. "If not, we will go ahead without IBM for this disk-drive cycle."

The disk drive, unofficially called the 3390, was scheduled for release last summer, but IBM abruptly canceled the announcement because of unspecified technical problems. Since that time, IBM has not publicly explained the nature of the problems, nor has it indicated when the drive will be available.

Last week, an IBM spokeswoman had no comment on the 3390's status. A recent report from International Data Corp., however, predicts that the drive will be announced in the first quarter of 1990, when the units will be available for immediate delivery.

With little to go on from IBM, users are turning to competitors such as National Advanced Systems, Inc. for new drives and to the used market for IBM 3380 drives to give them a short-term boost in storage capacity. Still other users report that they will squeeze by with their current disk drives for now.

The Royal Bank of Canada has been purchasing 3380 K-class drives from NAS since June. According to John Wood, manager of computer

networks, the 3390 delay did not cause him to jump to NAS, but it "has encouraged me to go to another supplier to get [drives]."

Wood, who oversees a disk drive installation of two terabytes of data, said he made plans to go to NAS for K-class drives earlier this year because he had been disappointed in the IBM 3380 K drive's performance. When the news broke on 3390 technical problems, Wood said his decision to do business with NAS became even more firm.

"I will not jump into new technology like we did with the K's because we got hurt that way," Wood said. "So we'll give more business to NAS in the short term."

Engelhard Corp. in Iselin, N.J., was planning on 3390 purchases this year, according to Steven Pook, director of information services. To ease capacity problems, Pook said he plans to pick up some used 3380s.

"We were very interested in what they were going to come out with," Pook said. "So we'll go to the used market for a small amount of new DASDs [direct-access storage devices] to get us through. It's not a burning problem for us, but it would have been a lot smoother and a lot easier if they announced it now."

Another user, however, chose to put a positive spin on the 3390 delay.

"It let us step back and take another look at our DASD situation," said Gary Gage, director of data center services at Teco Energy Co. in Tampa, Fla. "The extra time gives us time to evaluate what we have on the floor now. As it turns out, we can delay some purchases for a while, but if they don't announce it next year, it will have an impact."

IBM earnings befuddle; calm posture prevails

BY NELL MARGOLIS
CW STAFF

ARMONK, N.Y. — Only months after its second-quarter performance calmed earlier fears of waning demand for its wares, IBM stunned Wall Street last week with a warning that third-quarter earnings — and possibly those for the fourth quarter and year as well — will come in significantly below forecast.

For investors exhausted by the whiplash pace of technology stocks, the announcement, made to IBM analysts via teleconference, was one bout too many of the Big Blues: IBM stock plummeted six points amid heavy trading.

Users and analysts, however, remained comparatively sanguine. "The stock market has rarely been a reliable gauge of anything real concerning companies," said computer industry analyst Bob Djurdjevic, president of Phoenix-based Annex Research.

IBM pointed to three factors as principal contributors to the imminent bottom-line letdown: greater than expected damage to revenue stemming from last July's delayed debut of the 3390 disk drive; the continuing detrimental effect of a strong dollar on a company that derives more than 50% of its revenue from overseas; and the mounting tendency of users to lease rather than buy.

"This looks like typical business cycle [events]," said Leonard L. Hendrickson, IS director at American Brands, Inc. in Old Greenwich, Conn. While an estimated 95% of the \$12 billion conglomerate's computing resources come from IBM, Hendrickson said, he and his department are virtually unfazed by the vendor's day-to-day business.

When the disk drive rollout was derailed in late July, several industry analysts estimated the number of units that IBM would likely have sold this year had it met its original ship date and then factored in the delay's impact on the current line's prices. Their final estimate was that the snafu could cost the company more than \$1.5 billion in 1989 revenue [CW, July 31].

In addition, analysts have speculated that the promise of IBM's next-generation main-

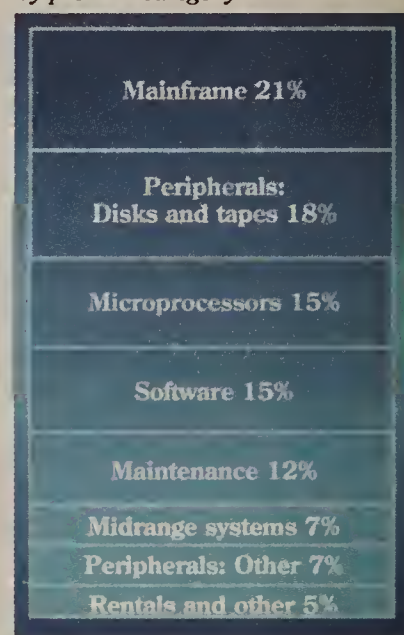
frame next year, code-named Summit, would chill this year's sales to some extent. That they are now being proven right, several analysts last week said, should not be surprising.

More disconcerting, said Paine Webber, Inc. analyst Stephen K. Smith, is the apparent surge toward leasing.

"IBM seems to have seen a sharp swing since the June time frame," he noted. "This isn't

Shades of Blue

Sources of IBM's 1989 revenue by product category



SOURCE: MONTGOMERY SECURITIES

CW CHART

IBM

FROM PAGE 1

large blocks of data.

- Subsystem Control Block (SCB) architecture, which provides developers with a standard method for communications and data exchange, both with or separate from the main system processor. IBM expects that this will ease development of intelligent subsystems and concurrent processors for MCA systems.
- Automatic fault detection and isolation features said to allow users to isolate or switch between faulty processors without disabling the entire system.
- Agreements with both Intel Corp. and Chips and Technologies, Inc. to co-develop bus master adapter chips aimed at providing add-in card makers with a single-chip very large-scale integration bus interface.

The announcement heightened back to advanced capability promised at the MCA rollout 2½ years ago. Yet IBM was careful to note that this was not an introduction and produced little tangible evidence of the ballyhooed advanced functionality. In fact, the enhancements and development tools, which are squarely targeted at increasing bus master card availability, are unlikely to result in commercial products until late next year.

"Understanding IBM's strategic Micro Channel direction is vital to computer designers, software vendors, card developers and . . . ensures that our Micro Channel computers will maintain their value well into the future," said George H. Conrades, IBM's senior vice-presi-

two years ago.

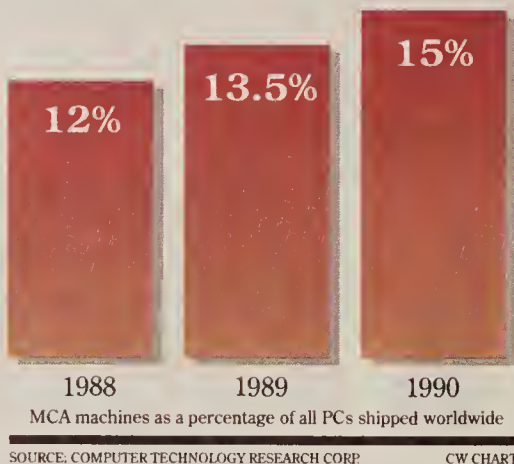
Neither Compaq nor any other member of the companies collaborating on EISA has yet delivered a product utilizing the alternative architecture but are expected to do so this fall.

"IBM finally got on the bandwagon to get third-party support after realizing they could not rule the [desktop] world with 29 bus master cards," said John McCarthy, director of research for Forrester Research, Inc. in Cambridge, Mass.

IBM executives spoke of a vision that includes the use of MCA on a broad range of computing platforms, from OS/2 to scientific workstations and mainframes. However, IBM speakers never made clear whether mainframe use of MCA extended beyond a 7437 Technical Workstation that exists today.

Tour de force?

While IBM's Micro Channel Architecture has hardly overwhelmed the PC industry, it has gained a foothold while the EISA alternative has yet to ship



SOURCE: COMPUTER TECHNOLOGY RESEARCH CORP.

CW CHART

dent and general manager of U.S. Marketing and Services.

"Precisely the point," said Mike Swavely, president of Compaq Computer Corp.'s North American operations. "IBM is trying to fight the war with words, while users are still waiting for delivery on promises" that were made more than

Analysts were cautious rather than caustic. Some said the expanded MCA capabilities as detailed by IBM hold the key to allowing users to slap any processor, be it Sun Microsystems, Inc. Scalable Processing Architecture, reduced instruction set computing or Motorola Corp. 68000, into a personal computer

running the MCA bus.

This would significantly aid integration of the IBM desktop into an open system. "You could take a generic chassis design and make it look to customers like almost any machine," said Aaron Goldberg, a vice-president at In-

ternational Data Corp.

However, such capabilities have always been available under bus mastering because the bus is no longer tied to the processor, according to Michael Slater, publisher of the "Microprocessor" newsletter.

Cullinet conference soothes users' fears

BY AMY CORTESE
CW STAFF

ATLANTA — Thousands of users gathered last week for a long-standing tradition: the annual Cullinet User Week conference. However, with the company now under the ownership of Computer Associates International, Inc., this time customers came seeking answers and reassurance from the new management.

For the most part, they got what they were looking for, according to customers who attended the conference, which was not open to the press.

"It was encouraging," said Pedro Silva, supervisor of database and operations services at Blue Bird Body Co. in Fort Valley, Ga. "Most users felt things were not as gloomy as they first thought."

For many customers, an executive management briefing provided the first exposure to Charles Wang, CA's chairman. "It was very different from the old Cullinet guard," Silva said. Wang and the CA executive team that addressed the crowd last week were "more bold and di-

rect" than the former management led by John Cullinane, he noted.

"The mood was positive," agreed Chris Getman, director of the mid-Atlantic region at General Signal Services in North Wales, Pa.

There were no surprises as Wang stuck to previously stated positions when fielding questions posed by a standing-room-only audience, according to sources present at the briefing. Wang repeated pledges to continue to support and enhance IDMS as well as maintain upward compatibility while adding SQL capability. Users said that when attendees asked

about pricing and renewal fees, Wang said that Cullinet had raised those prices before the acquisition and that CA had no immediate plans to raise them further.

However, the one question that remains unanswered is that of the fate of the Cullinet applications such as its manufacturing and financial systems.

Applications was "the only area where they failed to ease tension," Silva said. "Somewhere down the road, CA will have to make a decision to drop the Cullinet products and go with CA's, or the other way around."

Getman, whose shop uses IDMS in

conjunction with Cullinet's manufacturing and financial applications, said he was waiting for a strategic plan from CA on those applications. "That will determine what's pertinent to us," he said.

Although CA acted quickly after the acquisition to assuage the fears of IDMS customers, users of Cullinet and CA financial and manufacturing packages will have to wait until mid-November for details. Wang indicated that the firm will release a position paper at that time outlining plans for CA's various application package.

Concerns over the future of Cullinet applications escalated late last month with the reported abrupt dismissal of nearly all Cullinet employees involved with the Cullinet banking applications [CW, Sept. 25].

AS/Entry line heading for U.S. market

BY ROSEMARY HAMILTON
CW STAFF

IBM's Application System/Entry models, which are essentially renamed and slightly revamped System/36s, are coming to America.

First introduced in Europe last month, the three AS/Entry systems will begin shipping to U.S. customers this week. An IBM spokesman said the firm hopes to woo new accounts with the low-end systems and is targeting user sites that want to make a move to a multiuser system.

The AS/Entry models are positioned as the first step to the Application System/400 family, although they are not a compatible extension of this midrange line. The computers run SSP, the System/36 operating system. Therefore, a migration effort similar to a System/36-to-AS/400 move is required should a user wish to eventually upgrade.

At first glance, it appears odd that IBM would continue to build on its System/36 line when its successor, the AS/400, is clearly the company's midrange system of choice. But observers said the new models were released for two reasons. First, the 5363, the last System/36 to be announced before the AS/400 introduction, has been very successful. Secondly, IBM wants to bring the entry point to the AS/400 line down as low as possible. With the AS/Entry models, it can start customers off at \$11,000. An official entry into the AS/400 line will cost at least \$24,000.

According to David Andrews, president of Cheshire, Conn.-based consultancy ADM, Inc., IBM has not yet reached a point with AS/400 technology that it can offer a low-end AS/400 inexpensive enough to make the official entry point attractive to new users.

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NEWS SHORTS

Kodak makes cutover today

"We'll all become IBM employees on Monday." When he made that comment Friday, Bill Brautigam was still an employee of Eastman Kodak Co. Today, Brautigam, director of Kodak's data center project, and 275 to 300 former Kodak information systems personnel are members of Team Big Blue as IBM begins its 10-year contract to consolidate and manage all of Kodak's U.S. data center operations. Also last week, Kodak announced its latest restructuring project, splitting the divisions that comprise its information systems group into two groups, one of which is an imaging IS group.

Grid jumps in with handheld PC

The battle of one-upmanship in the portable market continued unabated last week as Grid Systems Corp. introduced a machine that can be held in one hand, clipboard-style, and recognizes printed handwriting. The Gridpad was part of a package of PC announcements by Grid parent Tandy Corp. The device is designed for workers who typically record data on paper forms such as route delivery drivers, nurses or claims adjusters. The machine sells for \$2,370 and begins shipping this month. Tandy's other announcements included the Tandy 1100 FD laptop computer, a facsimile system for PCs and the Open Desktop graphical user interface for Unix.

CDC's Price to cede position

Robert M. Price, chairman and chief executive officer of Control Data Corp., announced late last week that he would step down as CEO while retaining his chairmanship. The move is intended to answer recent industry criticism of CDC's management team, Price said. A search committee was set up to select Price's successor and is expected to find the new CEO within two to three months. While Price pointed to President and Chief Operating Officer Lawrence Perlman as a strong candidate, he also said the committee would consider non-CDC executives.

Comten expands on SNA support

NCR Comten will wrap its arms a little tighter around IBM's Systems Network Architecture (SNA) and Netview this week. The firm is expected to announce a Netview-compatible network management product for the Comten Operating System as well as added support for peer-to-peer sessions over IBM SNA networks.

Apple wins a round

A federal appeals court ruled last week that Apple Computer, Inc. did not unfairly mislead investors over its failed Lisa computer but added that the firm may still be in legal hot water over an abandoned disk drive called Twiggy. Weak sales of the \$10,000 Lisa computer were blamed for a hefty drop in Apple's stock in 1983, and the 1984 shareholder suit alleged that the firm misrepresented the machine's prospects. The court said that Apple's overly optimistic rhetoric was adequately countered by more pessimistic press coverage.

Amdahl adds Unix version

Amdahl Corp.'s native Unix operating system now complies with AT&T Unix System V, Release 3.1, in its latest release, UTS 2.0. Announced last week, Version 2.0 will run on Amdahl 5990, 5890 and 580 mainframes. Amdahl claims to be the only mainframe maker to offer native Unix in general availability.

Lotus ships Datalens

Lotus Development Corp. shipped its Datalens Developer Toolkit, a set of programming tools designed to enable third-party developers and corporate programmers to build drivers linking DOS and OS/2 database engines to Lotus applications such as its 1-2-3 spreadsheet. Lotus will provide drivers for Sybase, Inc.'s SQL Server, IBM's Extended Edition Data Manager and Borland International's Paradox.

Data centers defy Hugo punch

BY RICHARD PASTORE
CW STAFF

CHARLESTON, S.C. — One of the most destructive hurricanes ever to pummel the U.S. proved to be largely impotent against the fortified data centers in the local area.

Flying in the face of damage estimates as high as \$2 billion, local data centers contacted by *Computerworld* last week said the loss of power was the only blow Hugo managed to land to their operations.

Data center managers credited preparedness, sturdy building design and providence for their successful defense in the Friday, Sept. 22 bout with Hugo.

"We covered the system up, powered it down, backed it up and came through fine," said David Wakeland, director of data processing at the City of Charleston public works department.

The Public Works building suffered some broken glass, Wakeland said, and the power went down, as it did virtually everywhere in the city. But Wakeland acquired a diesel generator for his IBM 4381 with assistance from IBM.

L. Ralston Wyly III, vice-president of data processing at First Federal Savings and Loan Association, spent all of Thursday, Sept. 21, preparing for the grudge match with Hugo. "We backed up everything, all systems and applications, and transported tapes in duplicate to different locations within the local community," Wyly said. But damage turned out to be nil.

In fact, despite loss of commercial power, First Federal was open for limited business Monday morning after the storm. Wyly had installed a generator on Sunday, and the center and six of its 17 branches were on-line the next day.

Wyly had also placed First Federal's hot site in Little Rock, Ark., on alert. But the service was not needed. Indeed, Sun-gard Recovery Services, Inc. and Comdisco, Inc. both reported that not one customer declared a disaster.

"We were frankly surprised, because the impact of this is dramatically different from what we anticipated," said Vic Fricas, senior vice-president of operations at Comdisco's Disaster Recovery Services.

In related news, radio station

WHTK in Hilton Head, S.C., which patched together a database of relief information on donated IBM-compatible personal computers, has become by default a major command post for the relief effort.

When Hugo knocked all the Charleston-area broadcast stations off the air but spared WHTK, the station took on the 24-hour-a-day mission of disseminating information to thousands of callers and listeners in stricken locations. Volunteers built a 10-page database with Symantec Corp.'s Q&A package containing data on shelters, food supplies, available transportation and missing persons.

"We take a question over the phone, pull up the information, then put it on the air so that everybody hears it who might have the same question," explained station general manager Beau Sanders. "We can turn this stuff around in a matter of minutes."

WHTK's appeals have been broadcast via phone lines by radio stations around the country. "We've got 40 truck loads of relief supplies coming today from Toms River, N.J.," Sanders said. "That's the kind of thing we've been able to mobilize."

Bank

CONTINUED FROM PAGE 1

plans to upgrade to more powerful 3090s to accommodate increases in volume, reduce the number of operating systems and control expenses.

By the middle of next year, the company will have trimmed its current 930 information services employees by 150, with 150 employees relocating to the firm's twin consolidated regional data centers in North Brunswick, N.J., and Philadelphia.

"Certainly the consolidations have been emotional and stressful for employees," Provo said. But to minimize anxiety, he said, the company has been offering employees who are not moving to the regional centers "bridging packages" — a combination of severance and outplacement services.

In the bank's philosophy, the benefits of larger computers are more easily achievable by trimming databases, said Edward Knapp, president and chief executive officer of First Fidelity Bank and vice-chairman of the parent corporation.

Knapp said that the company has been doing one software conversion per week in an effort to reduce its applications software programs from approximately 450 to well below 100. "With about 25 software applications covering bank operations," Knapp said, "it is easier to main-

tain a central file on every customer and permit both employees and customers access to it."

In the bank's trust business,



First Fidelity's Provo

large customers are now on-line to the bank's databases and have current information about their own trading activities.

To accelerate consolidation, the company has implemented IBM's PR/SM in both regional centers. Applications that will not be converted to MUS will run in their native environments under PR/SM partitions on the 3090 Model 400S mainframes. "With PR/SM, we can move applications quicker," Provo said. "The quicker we can move applications, the quicker we can displace the boxes we have been sitting on."

Those "boxes" incur software charges — charges that Provo said amounted to several hundred thousand dollars annually in software releases alone.

Although the bank could have developed on-line customer services without consolidation, Knapp said that the process would have been more difficult.

When the First Fidelity Bank NA merged with the now-extinct Newark-based Fidelity Union Trust Co. in 1985, the technological underpinnings of Fidelity Union's own four previous mergers were still apparent in its back office.

According to Knapp, the bank still had four separate checking and savings applications, requiring support personnel to exchange paper documents among the banks. Such manual processes prompted errors that affected service and compromised the banks' ability to automate its branches.

Knapp said that acquisitions frequently require scrapping old systems and introducing new systems to handle increased volumes but added that there are generally no visible break points to decide when to do it.

In addition, the bank wanted to leverage concentrated resources to prepare for forthcoming technologies that could help it compete within its markets.

To that end, Provo said that the company hired six specialists to examine sophisticated technologies — from imaging systems for both document processing and check processing to running its North Brunswick operations as a virtually lights-out facility using IBM's Netview.

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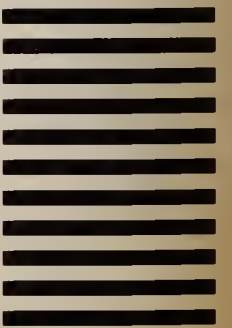
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User group could prompt SQL's of delight

BY PATRICIA KEEFE
CW STAFF

Users could take a giant leap forward in solving their SQL database interoperability woes if a new standards group, tentatively called Open SQL, can meet its

goal of producing a common SQL application programming interface (API) by early next year, followed by a reference model in late 1990.

"There is a crisis need for an intervender database access standard," said Eric Wasiolek,

manager of distributed Ingres product marketing at Relational Technology, Inc. (RTI).

With that in mind, many hardware vendors have toyed with building individual gateways to specific databases, but this approach would prove costly and

difficult to manage for users who would be forced to implement multiple gateways. Instead, Open SQL is advocating an "X.400 approach" to interdatabase interoperability and access.

With three meetings under its belt, the group has already

caught the attention of the Open Software Foundation (OSF), which has changed its schedule for a request for technology for SQL interoperability to be consistent with Open SQL's delivery schedule, said Mona Michelman, a product manager at Tandem Corp. who chairs Open SQL's Management Committee.

The group also has the backing of some big-name vendors. In addition to Tandem and RTI, other "producers" or full-time members include Digital Equipment Corp., Hewlett-Packard Co., NCR Corp., Sun Microsys-

MANY hardware vendors have toyed with building individual gateways to specific databases, but this approach would prove costly and difficult to manage.

tems, Inc., Informix Corp. and Teradata Corp.

The group's strategy centers around two key subcommittees:

- API, a common SQL API that will allow front-end software developers to write one application to one standard interface, ensuring access to other SQL databases, no matter what the database or what hardware platform it is running on.

- FAP, or formats and protocols, which is critical to the success of the effort. Database and systems vendors will have to implement the agreed-on standard FAPs to be able to provide information to front-end applications and ensure interoperability among heterogeneous databases.

Together, these two pieces address a growing user need. The multivendor, multiplatform mix now entrenched in much of corporate America has created a physically decentralized computing environment in which data is spread out all over the map, Wasiolek said. Yet if standards are set and implemented, users should be able to adopt one front end to access all of its back ends with no modifications, much like X.400 is used to tie different mail packages together, Michelman said.

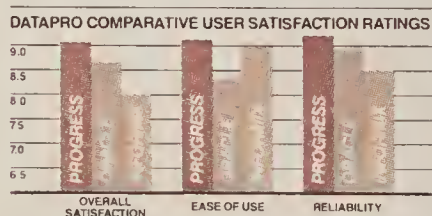
Even if the so-called Open SQL group fails to meet its optimistic schedule, it still expects to move a lot faster than the more established SQL standards efforts under way at the American National Standards Institute and the International Standards Organization's Open Systems Interconnect group.

"There was no standards body in place to create a standard in the time frame we need it in," Michelman said. Both groups will be kept abreast of Open SQL's progress.



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Stratus to take OLTP lower

BY MARYFRAN JOHNSON
CW STAFF

MARLBORO, Mass. — Stratus Computer, Inc. will enter the promised land of fault-tolerant computing for small, on-line distributed systems with an intro-

duction scheduled for tomorrow of a low-end machine in the \$40,000 price range.

Joining the Stratus XA2000 Continuous Processing Systems line will be an on-line transaction processing machine that reportedly equals the performance ca-

pabilities of the \$79,000 XA2000 Model 50, but at half the price.

"This puts Stratus in the unique position of competing against the NCR Tower line and some other midrange computers such as Microvaxes and IBM's

AS/400," said George Weiss, a program director at Gartner Group, Inc. in Stamford, Conn.

The new Stratus computer will eventually run Unix as well as its proprietary VOS operating system, company officials confirmed, although Unix will not be available until next year.

"Stratus has an interesting strategy here, with the only fault-tolerant Unix box," said

David Wu, an industry analyst at S. G. Warburg and Co. in New York. "If they choose to support OS/2 LAN Manager, it can become a fault-tolerant PC file server. That's exciting."

In-store processor

The customer testing phase for the new machine is just beginning now, said William Elliot, vice-president of strategic planning at Stratus. "We are hoping for quantity sales in distributed environments," he said. "This would be an excellent in-store processor" for retailers.

Later this week, IBM is expected to announce its intent to include the new low-end product in its Stratus-based System/88 line, an IBM company spokesman acknowledged.

The IBM alliance was what caused a few eyebrows to be raised last week when Stratus announced it had teamed up with AT&T in a development agreement to ensure future compatibility between AT&T's private branch exchange systems and Stratus' fault-tolerant computers.

The companies will develop a software interface between Stratus' XA2000 family and the AT&T Definity Communications Systems.

Stratus also unveiled a new development program to integrate its XA2000 line with Integrated Services Digital Network telecommunications networks.

Peter Kastner, vice-president of the Aberdeen Group, a market research firm based in Boston, characterized the recent Stratus announcements as "aggressive product moves" that make "an already very good platform even more attractive to AT&T."

Candle shows new monitor

MONTEREY, Calif. — Candle Corp. previewed an entry-level version of its widely installed Omegamon console monitor product for IBM mainframe systems at last week's Candle users' conference.

Called Omegamon/E, the menu-driven package complies with IBM's Common User Access interface standard and is designed to eliminate the need to learn Omegamon's special commands.

Omegamon/E, which has not been officially announced, is being beta-tested at a handful of Candle sites nationwide. The package, which will be sold as a companion product to Omegamon, is scheduled to be shipped in the fourth quarter, a company spokeswoman said. Omegamon/E will be priced at \$5,000 for Omegamon users and \$15,000 for new users.

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AL	Huntsville	Oct 11c	Nov 30*
AZ	Scottsdale	Oct 10af	Nov 9
CA	La Jolla	Oct 19f	
	Los Angeles	Oct 12*, 17f	Nov 7am
	Newport Beach	Oct 26f	Nov 16
	Ontario	Oct 3f	
	San Diego	Oct 10*	Nov 14
	San Francisco	Oct 26ef	Nov 15al
	San Mateo	Nov 9*	
	Santa Clara	Oct 19f	Nov 21ac
CO	Colorado Springs	Oct 24	
	Denver	Oct 19ef	
CT	New Haven	Oct 12pa	
	Stamford	Nov 9f	
DC	Washington	Oct 17*	Nov 14f*
FL	Boca Raton	Oct 18f	
	Miami	Nov 9c	
GA	Atlanta	Oct 17f	Nov 15c
	Macon	Oct 10c	
	Savannah	Nov 2f	
IA	Des Moines	Oct 18	
ID	Boise	Oct 12f	
IL	Chicago	Oct 25ef	Nov 15f
	Springfield	Nov 16	
IN	Indianapolis	Oct 17a	
KS	Wichita	Oct 12	
KY	Louisville	Nov 16f	
LA	New Orleans	Oct 20f	
MA	Boston	Oct 26am	
	Worcester	Nov 1p	
MD	Baltimore	Oct 17c	
MI	Bloomfield Hill	Oct 10f	
	Dearborn	Nov 7aa	
	Grand Rapids	Oct 12f	
	Lansing	Nov 9f	
MN	Minneapolis	Oct 11ac	Nov 7fm
MO	Kansas City	Oct 3*	Nov 8f
	St. Louis	Oct 10ac	Nov 14f
MS	Jackson	Nov 14c	
NC	Charlotte	Oct 27f	
	Res Tri Park	Oct 26p	
NE	Omaha	Nov 14f	
NH	Merrimack	Oct 4	
NJ	Cherry Hill	Nov 14f	
	Iselin	Oct 10f	Nov 8f, 29f
	Saddlebrook	Oct 19f	
NY	Albany	Oct 11c	
	Buffalo	Nov 9c	
	Melville	Oct 18p	Nov 16f
	New York City	Oct 11f, 25f	Nov 1a, 29f
	Rochester	Oct 19c	
	Syracuse	Oct 18f	
OH	Cincinnati	Oct 24*	Nov 14mpa
OK	Oklahoma City	Nov 15c	
OR	Portland	Nov 9cf	
PA	Harrisburg	Oct 19	
	King of Prussia	Oct 13c	
	Philadelphia	Oct 24f	Nov 7f
		Nov 28a	
SC	Charleston	Oct 26f	
	Columbia	Oct 19c	
	Greenville	Oct 12f	
TN	Memphis	Nov 28*	
	Nashville	Oct 24c	
TX	Austin	Nov 3c	
	Dallas	Oct 11f, 3cf	Nov 7fpa
	Ft. Worth	Oct 16f	
	Houston	Oct 19fpa	Nov 16cf
	San Antonio	Nov 2c	
UT	Salt Lake City	Oct 30f	
VT	Williston	Oct 19	
WA	Seattle	Nov 1, 7*	
WI	Madison	Nov 9	
	Milwaukee	Oct 24c	

The following key indicates additional afternoon seminars that are offered with these seminar dates:

- a Macintosh Networking
- c CASE/Application Tools
- f Oracle Financials
- i Oracle Int'l User's Group '89
- l Oracle Mail
- m Computer Integrated Manufacturing
- p PC Product Solutions
- u Unix

Please note:

- * Seminars held for Federal Government only.
- # Only the afternoon seminar is held that day.

CANADIAN SEMINARS

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Calgary	Nov 1, 16
Edmonton	Oct 12, 24
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London	Oct 24
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Ottawa	Oct 12
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Saskatoon	Nov 9
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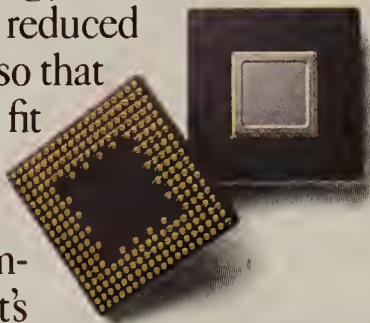
1 The NeXT™ Computer System is the first computer in the world (and so far the only) to use read/write/erasable optical storage. While PCs today are typically equipped with Winchester drives that store 20 to 40 MB, a single optical disk can store 256 MB. Plus, it is removable, for portability and added security. This dramatically new technology provides storage that is simultaneously vast, reliable and cost-effective—a combination unmatched by computers of any size.



2 NeXT has made the power of UNIX® usable by mere mortals. UNIX is the high-performance operating system used by workstations to achieve true multitasking and superior networking. Unfortunately, it has always been the antithesis of user-friendly. NeXT has given UNIX a revolutionary new interface—one that is both visual and intuitive. Now computer users of every level can instantly wield this tremendous power, with no technical knowledge whatsoever.



3 To achieve the power needed for the 90s, NeXT bypassed traditional workstation architecture and went directly to that of a mainframe. This eliminates bottlenecks and attains an extraordinary level of system “throughput”—the true measure of computer performance. Only through the use of VLSI (Very Large Scale Integration) technology could this architecture be reduced in size so that it could fit inside a desktop computer. It's a mainframe on two chips.



4 While PostScript® has long been the industry standard for printing, NeXT has made it fast enough to also be used on the display. This “unified imaging model” ensures that what you see on the display is precisely what you will get on paper. All your work, in any size type and any degree of rotation or magnification, appears with perfect 92-dots-per-inch clarity on the NeXT MegaPixel Display. And with laser precision at 400 dpi on the NeXT Laser Printer.



IN THE 90s, WE'LL ONLY TEN REAL BREAKTHROUGHS HERE ARE SEVERAL



5 The NeXT Computer System is the first to be capable of producing CD-quality sound. Without requiring any additional equipment. This feat is made possible by a chip that has been specifically designed for the task of manipulating sound—the Digital Signal Processor (DSP). Because this processor is standard



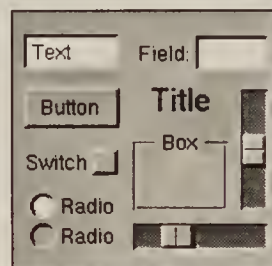
in every NeXT machine, software developers will be able to call upon its power to enrich programs we use every day. Now computers will not just be seen, but heard.

6 NeXT Mail takes electronic communications beyond anything you've seen on a personal computer before. Now you can send and receive multimedia mail—including text (with varied type fonts, styles and sizes), graphics and voice messages. And despite its high level of sophistication, NeXT Mail is so intuitive, you may not ever need to open the manual. NeXT Mail is built into the system, along with Ethernet and TCP/IP, so the NeXT



machine can quickly become a part of existing networks.

7 Programmers can create software on the NeXT Computer up to ten times faster than on any other computer—the result of a breakthrough called NextStep®. It gives software developers the power to create the graphical user interface portion of their applications (often the most time-consuming and difficult part) without any programming at all.



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Price-Andersen didn't add up

BY ELLIS BOOKER
CW STAFF

CHICAGO — Arthur Andersen & Co. and Price Waterhouse called it quits last week, ending three months of merger talks and confirming recent specula-

tion that their plan to form the world's largest accounting and consulting firm was doomed.

In a terse joint statement, the two companies said, "... differences could not be resolved within a realistic time frame." The statement also said that

confidentiality agreements had been signed by both companies regarding the details of the aborted merger.

Almost from the day the firms announced the merger idea in July, observers said the deal would be difficult to pull off. Ana-

lysts pointed to differences in the business and corporate cultures of the two accounting giants, both of which maintain large worldwide staffs.

For example, Andersen's fast-growing consulting business, spun off late last year as Andersen Consulting, does not have an equal at Price, which is known primarily for its auditing practice.

"We've said all along the process was being driven by the accounting side" at Andersen, said David Lord, managing editor of "Consultants News," a Fitzwilliam, N.H.-based newsletter.

"It came down to Andersen's accounting partners trying to find a way ... to avoid being overtaken by the consulting side," he added. Lord called the break-off of talks a victory for Andersen Consulting.

However, Skip Battle, Andersen Consulting's managing partner of market development, vehemently denied that the 700 partners in the consulting group had nixed the merger.

"The answer is, that's absolutely not true," said Battle, who referred to the "firmwide" decision that the differences with Price could not be resolved. He said the management team, which began the investigation in July, included representatives from Andersen's consulting, tax and audit operations.

Asked about future suitors and merger options, Battle said Andersen, which has 2,500 partners worldwide, was "happy, excited and bullish" about its position in the marketplace. Andersen Consulting posted worldwide revenue of \$1.1 billion last year, compared with \$385 million from Price Waterhouse's consulting operation, according to Lord, who said that Andersen Consulting grew 34% between 1987 to 1988 and currently represents at least 40% of Andersen's total worldwide revenue.

Yet another hurdle

Andersen, one of the world's largest computer systems consultants, has increasingly engaged in joint ventures with computer companies, which raised yet another hurdle for the merger.

Two of Andersen's biggest venture partners, IBM and Hewlett-Packard Co., are audit clients of Price, and an Andersen-Price merger would have almost certainly called for Andersen to distance itself from those relationships.

One solution to such audit-practice conflicts "might have been to push [Andersen Consulting] farther from the audit practice. But that's just what the partners have been trying to avoid," said Tom O'Flaherty, director of research at Broadview Associates, a Fort Lee, N.J.-based investment banking firm specializing in information technology and mergers and acquisitions.

O'Flaherty noted that, had the two combined, the resulting consulting practice would have had less influence than Andersen Consulting now enjoys.

Had Andersen and Price combined, they would have eclipsed Ernst & Whinney and Arthur Young, which are currently undergoing a merger that was announced in June.

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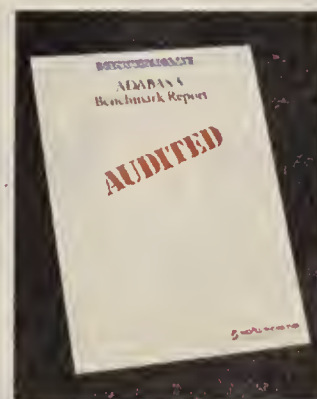
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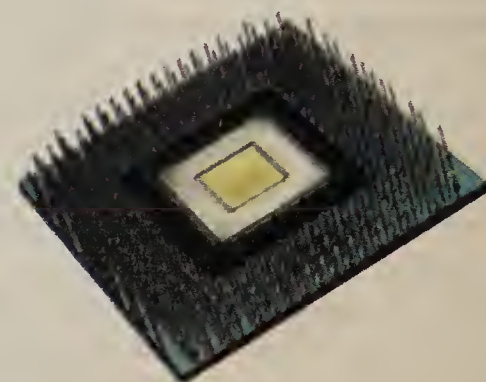
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In 1988 Motorola was a winner of the Malcolm Baldrige National Quality Award.

Building On Beliefs



MOTOROLA

EDITORIAL

Circus circus

stand-ard: *n.* An acknowledged measure of comparison for quantitative or qualitative value; norm.

RECENTLY, THE PC software community, also known as the circus of champions, put on another sterling performance, replete with attacks, counterattacks, hair pulling and other assorted histrionics — all in the name of giving customers what they want: standards. Notable for its absence on the circus program was a shot of mea culpa, something woefully few in the industry are capable of mustering.

The performance in question here pitted Microsoft and Apple against Adobe, the desktop font king. The stage was a desktop publishing confab at which Microsoft's Bill Gates announced that his company along with Apple would develop their own font "standard" apart from the well-established "standard" set by Adobe.

This brought Adobe's CEO darn near to tears. It also convinced him to open up some formerly proprietary product specifications, which will eventually allow the Adobe standard to proliferate. This action will also cut into Adobe's virtual monopoly, which is the real reason its CEO was so upset.

If you think this situation looks and feels arcane, as *The Wall Street Journal* wrote, you are not alone. This great font debate, however, points out one of the most glaring deficiencies within the vendor community. For in its effort to answer customer pleas for greater product standardization, industry players find themselves awkwardly torn between addressing those pleas and tripping over their self-interests.

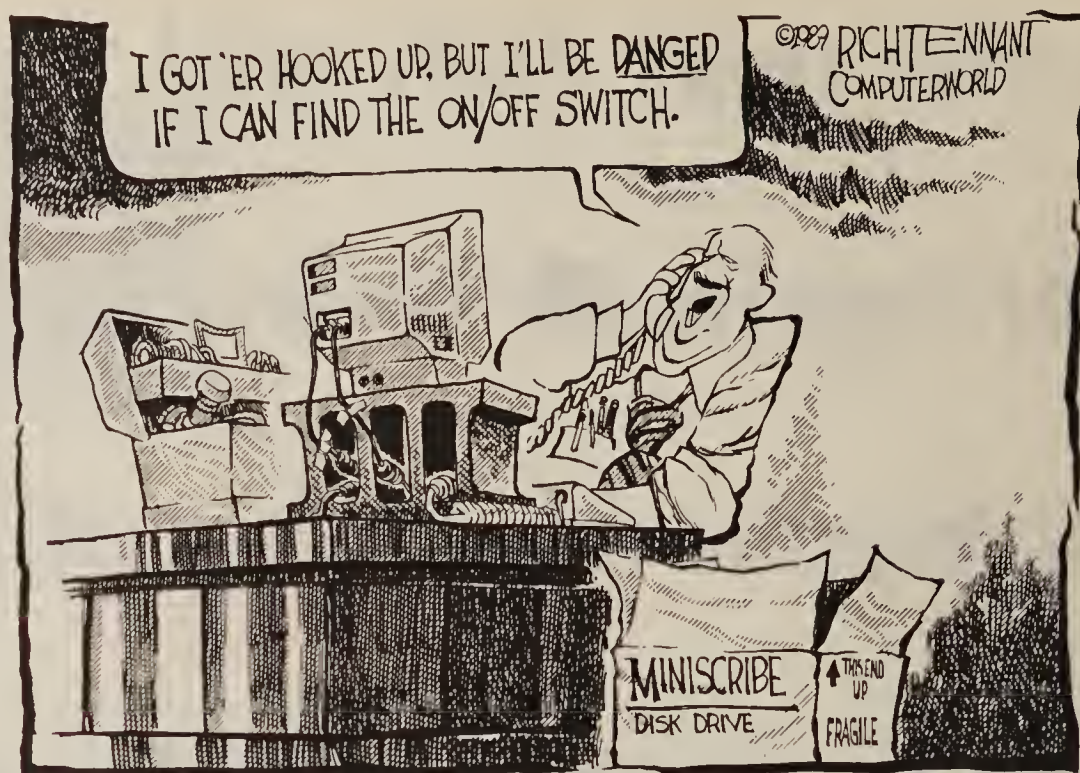
Take the great Unix debate. Last year, AT&T and Sun scared the rest of the industry into forming its own Unix standards consortium, the Open Systems Foundation, which featured a most peculiar group of bedfellows, including DEC, IBM and Hewlett-Packard. As in the font war, each group is promising to bring a Unix standard to market. That's really nice of them both.

One thing is certain: These days and forevermore, real standards will be determined in only one place — the marketplace — and by only one group — the buying public. The vendor community is more than willing to acknowledge this fact in forums and in company literature. The reality behind the scenes usually pits vendor against vendor in self-serving tugs of war.

But take heart because this rivalry and jockeying is just what a free market is all about. A little chaos in the marketplace is fine at times because it brings choice to buyers, and from the selection process true standards really do emerge.

Unfortunately, all this vendor posturing and pontificating has also profoundly confused the market, and in some cases customers are sitting back and not buying at all. And the vendors have no one to blame but themselves.

Perhaps they ought to heed the words of Lotus CEO Jim Manzi, who at an industry meeting last week cautioned his peers, "Don't cloak our skullduggery in noble phrases."



NEWS ITEM: Report says Miniscribe padded inventory by shipping bricks instead of disk drives to distributors.

LETTERS TO THE EDITOR

A U.S. tilt

"Supercomputer users caught in eye of political typhoon" [CW, Sept. 18] reads like it was written in Japan. Some corrections to its biased perspective follow.

The story bemoans the incident in which an HNSX system (from the Japanese company NEC) was to be essentially given away to MIT but was blocked. This is a standard Japanese tactic called "anticipatory pricing," in which products are sold below cost to deny a competitor a sale, driving smaller competitors out of business.

The article claims that by denying the Japanese supercomputer vendors the right to dump their products, "... the government is biting off its nose to spite the nation's face." The apparent meaning of this is that Japanese supercomputers are superior to U.S. supercomputers. With a little more homework, you would have found that U.S. supercomputers handily outperform any available Japanese model.

As for Samuel Adams' repetition of the Japanese pleas for a "level playing field" in supercomputing, it takes real chutzpah from a nation like Japan that for four decades has systematically benefited from a tilted playing field and still does in many areas. They want to level those that would be to their advantage and retain the tilt in Japan's favor in the rest. When the Japanese decide to open all their markets, then will be the time to talk about level playing fields. I for one would be delighted if the U.S. government finally woke up and tilted more playing fields in this nation's favor.

Jack Worlton
Worlton & Associates
Los Alamos, N.M.

Fighting piracy

If every computer had a software-readable serial number, we could eliminate the problem of software piracy. Each copy of software could be encoded so that it would run only on one specific computer. Extra-cost versions could be prepared that would run on more than one computer.

The serial number need not be unique. If each computer contained a randomly chosen four-digit number, the chance of two friends or colleagues owning computers with the same number would be small.

When the customer reordered a software product directly from the publisher, he would supply his computer's serial number. The publisher would embed that number into the object code by compiling, linking or some more efficient method.

Retail sale of software would be complicated a bit by this scheme. Before using the product, the customer would have to call the publisher and supply his computer's serial number. He would also be asked to supply a serial number printed in the software's packaging, so that the publisher could verify that the customer had actually purchased a copy. The publisher would then send the necessary code to the customer, either by first-class mail or electronically.

A serial-numbering system would impose some costs on computer manufacturers, software publishers and customers. I believe these costs would be modest and be offset by the benefits. Honest customers would no longer have to pay inflated prices for software to subsidize the pirates. Such a system would improve the health of the

software industry and ultimately benefit customers and hardware manufacturers.

H. Richard Jacobson
Software Developer
Plymouth, Minn.

Pioneer product

Robert Tasker's "The risks and rewards of repository products" [CW, July 17] neglects an important side of the repository story.

Tasker states "... Oracle Corp., Digital Equipment Corp. and Computer Corporation of America are working feverishly to release their own repository products." The implications are that 1) No functional repository currently exists, and 2) only a large software company can produce a viable repository product.

Brownstone's Data Dictionary/Solution, released in 1987, was the first extensible DB2-based repository and tool development workbench. Our DB2 Admin/Solution, introduced in late 1987, was the first true repository-based tool set for DB2 database/security administration. The latest features of these products, such as user-extensible life-cycle phase management and automated migration, go far beyond Tasker's estimates of initial IBM repository functionality. Both products have been installed at over 30 sites.

David P. DeCamp
Senior Product Developer
Brownstone Solutions, Inc.
New York

Computerworld welcomes comments from its readers. Letters may be edited for brevity and clarity and should be addressed to Bill Laberis, Editor, Computerworld, P.O. Box 9171, 375 Cochituate Road, Framingham, Mass. 01701.

Are we fostering push-button managers?

RON BRZEZINSKI



In their quest to be all things to all people, IS managers and software vendors may be setting the stage to create a generation of non-decision makers.

Business analysts and managers are armed with professionally packaged and easy-to-access data to analyze, strategize and forge ahead of the competition. It appears that competitively advantageous systems have finally arrived for everyone . . . or have they?

The new wave of "competitive advantage" systems may evolve into business disadvantages. Superfriendly management support systems, providing fingertip access to "professionally packaged" answers, can turn into decision-making crutches. Many line managers are not prepared to cope with the sudden access to billions of pieces of data and complex packaging algorithms thrust upon them by a new generation of management support systems.

Repetitive interaction with databases without understanding the system's data selection,

Brzezinski is former vice-president of information systems at Quaker Oats Co. in Chicago.

summation and presentation processes can lull users into a dangerous misuse of the system. Professional packaging and authoritative presentation of data, automatically provided with each system query, can trap users into a false sense of security . . . believing that "the computer knows best."

Farfetched? It happened in the 1960s. Some business managers became overly dependent on computer-generated recommendations and lost confidence in their own experiences and instincts.

The phrase "the computer said so . . ." was sufficient justification for establishing sales forecasts, manufacturing schedules and inventory levels. A lack of understanding of how the computer generated answers was a key reason why computer-based manufacturing resource planning (MRP) had several years of false starts. It can happen again in other business functions.

The new wave of systems are designed to deliver data by *anticipating* the functional manager's questions and issues. When the system is interrogated, volumes of data are automatically scanned, collected and analyzed. Data is professionally packaged and displayed, creating an appearance of authority.

It appears that IS managers are achieving their objective — to provide business users with

unlimited data access with minimum inconvenience. Some IS professionals feel that data selection, organization and presentation complexities should be transparent to the user. Al-

required business training to use these tools. There is a danger that advances in technology, data delivery and packaging may create a generation of "push-button" analysts and managers.



KEVIN POPE

though admirable, this philosophy will not foster a competitive advantage but instead could create a decision-making disadvantage.

New technologies such as personal workstations, user-friendly gateways and easy-to-use data delivery systems are being introduced faster than the

Managers who once trusted intuition and gut feelings may become totally dependent upon professionally packaged answers leaping from their desktop workstations because they have not learned how to integrate personal experience with data. Their scenarios may be restricted to new versions of data in-

stead of exploring new relationships and business conditions. Analysts and managers who once believed trial-and-error explorations, may become enamored with the delivery system's ability to change data parameters instantly and immediately respond with professional presentations of new answers.

Some managers and analysts may never learn how to use information as a competitive resource.

Information is created by internalizing the data and blending it with personal knowledge and experiences. The process of data browsing, for example, can change complex situations into manageable, understandable chunks.

Data browsing is a key skill for using the new generation of business support systems. The system must be designed to facilitate browsing, and users must be educated on

how to browse.

Overly simplified data delivery and packaging can lead to an overly simplified approach for managing the business. IS managers, software vendors and business managers have to safeguard their management support systems from turning into improperly used crutches.

Three remain in final mainframe face-off

FREDERICK G. WITHINGTON



With the coming Summit series, IBM will face off against Fujitsu and Hitachi for the mainframe mastery of the world. No other major competitors survive. The contestants have agreed on a set of rules: unconstrained price-cutting and raids on all customers in the world are permitted; only stealing of legally protected products is forbidden. IBM has its most potent weapons ever in components, software, architecture and marketing. Final victory seems likely.

There are others offering mainframes, but each must settle for a niche. Unisys serves an eroding base of Burroughs and

Withington, a 30-year veteran of the computer industry, was a vice-president at Arthur D. Little, Inc. and is now an independent consultant.

Sperry customers, but it is unlikely to get new ones at the high end as the IBM architecture moves through MVS/ESA, chips pass 4M bits and millions of instructions per second pass 100. Control Data has given ground in the mainframe business, pressured by the vector facility on IBM's 3090. Bull offers excellent NEC-developed products, but NEC and Bull have too small a high-end installed base to support continuing research and development. DEC will sell larger processors to its VAX base, but history shows that few mini sites evolve all the way to high-end mainframes. And that's it — no other organization is going to invest what it would take to compete in the maturing mainframe market.

IBM executed bilateral agreements with both Fujitsu and Hitachi that set the rules. (In the absence of a body of international industrial law, the multinational corporations are creating it for themselves.)

The agreements specify

clearly what rights each has to the others' product data. This includes interface information and functional descriptions, but no current or future products may be used without separate agreement.

The agreements also open up all national markets. As a result, IBM has introduced a compatibility box and is attacking Fujitsu's customer base in Japan. Both Fujitsu and Hitachi have abandoned the fiction of working through proxies in the U.S. The Amdahl 5990 is the first in the Amdahl line to be manufactured primarily by Fujitsu; Hitachi has bought NAS with only minority participation by EDS Communications.

Antitrust concerns have faded as international competition has intensified, so fixed hardware prices have gone out the window. All three companies will bid any price they choose to capture an account. And IBM freely adjusts price structures to favor its position, most recently for system programs.

Existing IBM customers aren't too angry because improving hardware price/performance offsets the increase. New accounts aren't angry because there is no initial license fee. Fujitsu and Hitachi customers using

IBM software are the ones that are hit. The Japanese companies must respond with either lower prices or substitute system programs. Both Fujitsu and Hitachi have offered their own mainframe operating systems for many years, but they have installed very few outside Japan. And one hears very little about these Japanese giants trying to keep up with full Systems Application Architecture capability; it appears that for practical purposes, IBM has captured the world market for high-end OS.

IBM's marketing capability is the strongest it has ever been. Stung in recent years by declining profits, IBM has transferred many staff members into field marketing and trained them to form "partnerships" with customers.

Summit up

We know a good deal about Summit machines. They will employ SAA products, particularly MVS/ESA, DL/1 and a repository. They will have at least six-way multiprocessing and a variety of auxiliary modules — including communications, file and vector processors. They will employ the world's best memory chips (perhaps 16M bits, even in the initial models). The logic

chips are less certain; IBM has always lagged in this area, but improvements seem likely.

For almost 20 years the Japanese competitors have been able to maintain an edge on IBM's high-end electronics, but it appears that the Japanese are about to lose their edge.

In the 1960s, there were fears that IBM would gain a monopoly of the mainframe market. Now it may happen, but the monopoly may be a hollow one.

For one thing, as the mainframe market has matured, its growth rate has steadily declined; it may no longer be much of a prize. For another, Summit and all other mainframe systems will be more modular than they used to be, with modules interconnected via public standards (open ones and IBM's SAA).

If IBM's profits from any type of module become attractive enough, plug-compatible manufacturers will be attracted. Lilliputians will continue to harass IBM's Gulliver and probably keep prices in line. Or maybe the competence of the Japanese will enable them to recover the electronics lead once again. Whatever its outcome, the coming face-off will be the most dramatic in the history of the mainframe industry.


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Zoom Profile Options Reconnect Info Exp(X) Help
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Icandle Status Monitor
DIR. MIS PERSONAL

Monitored      Exceptions      Response Time      DASD Analysis
System

1 CICS B1      [ ] [ ] [ ] [ ]
2 CICS DGS     [ ] [ ] [ ] [ ]
3 MSA 23       [ ] [ ] [ ] [ ]
4 TCICSDCS     [ ] [ ] [ ] [ ]
5 MVS ST31     [ ] [ ] [ ] [ ]
6 RSE LA       [ ] [ ] [ ] [ ]
7 MIS DB2      [ ] [ ] [ ] [ ]

```

(*) CURRENT DISPLAY IMPACT of all tests on UPDATE1

IPW0 (44% 0.7200)

The largest impactor to UPDATE1 is TDY006 (72062)

Test Name	Impact (%)	Value
TDY006 (72062)	37%	72062
JEB7 (Shy)	25%	Shy
TDCL12 (7360)	9%	7360
TDCL12 (7360)	4%	7360
TDCL12 (7360)	4%	7360

```
0090 T2IANL TSURCSI,,, (PG=091), degrading %CISCIM
0090 T2IANLWT Set performance of TSURCSI to 13
0080 T2IANLWT for 56 Seconds
0090 T2IANL
0090 T2IANL Primary Contenders with %CISCIM
0090 T2IANL
0090 T2IANL
```

	IN TASKNAME	PERFORM	SweepTIME	IMPACT %
0090 T2IANL	<1> TSURCSI	091	56	027%
0090 T2IANL	<2> %CISMSA	055	54	007%

```
0090 T2IANL
0090 T2IANL
```

Candle AF/REMOTE

PROCESSOR ACTIVITY 01:46:57

CHANNEL ACTIVITY

Channel	Activity
OPT 01	
OPT 02	
OPT 03	
OPT 04	
OPT 05	
OPT 06	
OPT 07	
OPT 08	

PROCESSOR ACTIVITY FOR LAST 24 HOURS

15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

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HARD TALK

J. A. Savage

Turnaround is fair play



It was noted recently in this space that Hewlett-Packard has accomplished a turnaround in image that would make Pia Zadora green with envy.

Just a few weeks ago, I could have sworn I had stumbled onto a Bruce Springsteen concert when I was looking for Interex, the HP users group. Only instead of the bulked-up body and raunchy voice of the Boss, it was David Packard, another kind of boss, being projected 10 times larger than life on three giant video screens, replete with dry ice mist rising from the stage and mirrored disco balls descending from the ceiling.

With my ears still ringing from the rock 'n roll finale, I found many HP users who truly wanted to believe that stodgy old HP was really changing. But back at their jobs, they see little hard evidence of such a change.

Seems like all the change that's been going on has happened at the top, out here in the Palo Alto, Calif., company headquarters. It hasn't been going on in HP's sales and support offices, the company's liaison with the real people — its users.

Continued on page 27

Unisys users cheer extra storage

High-end disk subsystem arrives just in time to put more in less space

BY ROSEMARY HAMILTON
CW STAFF

Some Unisys Corp. mainframe users breathed a sigh of relief recently when the company introduced a new high-end disk subsystem, the M9720.

Beta-test users contacted last week said the M9720 has given them a needed boost in storage capacity while taking up less computer room space than their older disk subsystems, such as the Unisys 8480s. One user said the Unisys product came just when he was leaning towards a Unisys competitor, Amperif Corp., to resolve storage capacity and space problems.

The M9720 was introduced last month along with another disk subsystem, the M9710. The M9720 is designed for Uni-

sys' mainframe line that was originally Sperry Corp. equipment. It works with the 1100/90, 2200 series and System 80 models. The M9710 was designed for the A and V series mainframes, the Burroughs Corp. side of Unisys' business.

An M9720 was delivered in August to Giant Eagle, Inc., a wholesale and retail grocery company in Pittsburgh. Fred Bechtold, manager of technical support, said the unit, which can hold up to 16G bytes of data, takes up less room than a standard-size desk.

"The M9720 we have now is only three-quarters full," Bechtold said. "If you had a full-blown M9720 cabinet, you could get rid of five 8480s."

Bechtold said he had few options earlier this year when he

needed to increase the storage capacity and had little room to play with in his data center. He looked at an offering from Amperif, and then Unisys stepped in to inform him about the M9720. "They said the 9700s are com-

ing out if you can stick with us a little longer," he recalled.

While the company waited, Unisys loaned it a few additional 8480s to ease capacity problems, Bechtold added. The M9720 was delivered in August and has undergone a series of tests, the results of which "pleasantly surprised" the IS staff, he said.

Bechtold noted the only
Continued on page 27

IBM ships decision tool

BY JOANIE M. WEXLER
CW STAFF

One of several decision-support elements of IBM's Officevision strategy was scheduled to ship to user sites late last week after receiving high marks from at least one test customer.

The icon-driven Data Interpretation System (DIS), designed for Intel Corp. 80386-based IBM Personal System/2 models, reportedly allows data-reliant but noncomputer-oriented users to extract information from a mainframe, access IBM's relational databases and manipulate data.

The Broadway, a Los Angeles-based clothing retailer that is a division of Carter Hawley Hale, Inc., tested an IBM SQL/DS version and is now trying out an IBM DB2 version, scheduled to ship in late December.

"On a scale of 1 to 5, I'd give the SQL/DS [version] a rating of 4.1 for ease of use, the time it saves and its contribution to sales and margin increases," said systems consultant Stephen San Marchi.

DIS is the result of a partner-

ship between IBM and Metaphor Computer Systems, Inc., under which Metaphor software running on Metaphor proprietary hardware is ported to the IBM hardware base.

"The functionality is virtually identical," explained IBM's Stephen Cragan Jr., manager for DIS market development. "IBM's DIS, though, uses a high-resolution color display, where the Metaphor product runs on a monochrome monitor. We also added a capability called the PC Directory Tool, which will allow you to run DIS while you import and export data from your OS/2 file system."

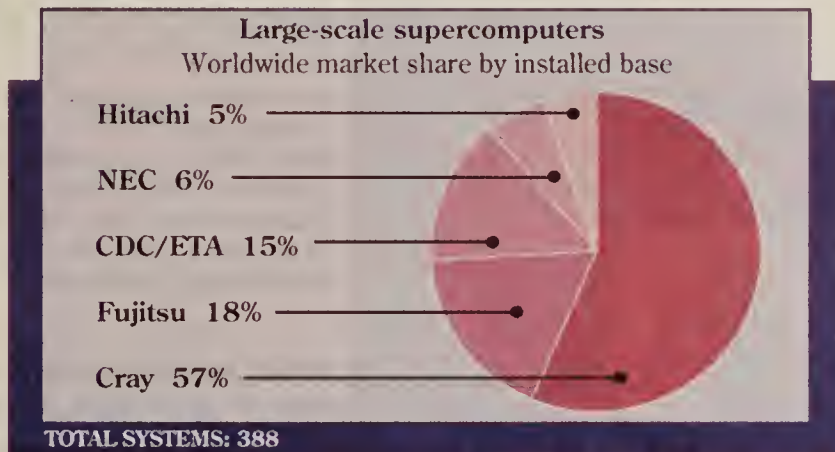
"The IBM/Metaphor pairing on this product makes a lot of sense," commented analyst

Continued on page 27

Data View

Top guns

Cray still holds the lion's share of the supercomputer market; Japanese vendors combine to hold the next largest share of 29%



SOURCE: THE SMABY GROUP, INC.

CW CHART: DOREEN DAHL

Inside

- National Public Radio uses IS to bring it out of the red. Page 25.
- A new look for IBM's APL. Page 25.
- Concurrent targets VAX processors. Page 26.

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A Comparison Chart of the Major Cooperative Processing Software Products:

Functions:

Processing Topologies Supported

SAA CUA Interface for existing 3270 applications:

Under PC/DOS	Yes	No	No	No	No	No
Under OS/2	Yes	Yes	Yes	No	No	No
Transition from PC/DOS to OS/2	Yes	No	?	No	No	No
3270 Communications	Yes	Yes	Yes	No	Yes	No
Peer-to-Peer Communications:						
for extending existing 3270 applications	Yes	No	No	No	No	No
for new applications	Yes	No	No	Yes	No	Yes
Maintenance of PC applications & data from a central library	Yes	No	No	No	No	No
Background file transfer in PC/DOS	Yes	No	No	No	No	No
Background peer-to-peer processing in PC/DOS	Yes	No	No	No	No	No
Object Orientation	Yes	Yes	No	No	No	No
CASE/Application Generation	Yes	No	No	No	No	No

SAA CUA Support

All functions supported on PC/DOS:

Action Bar	Yes	*	Yes	No	No	No
Pull-down menus	Yes	*	Yes	No	No	No
Pop-up menus	Yes	*	Yes	No	No	No
Messages and Prompts	Yes	*	Yes	No	No	No
Dialog Boxes	Yes	*	Yes	No	No	No
Forms	Yes	*	Yes	No	No	No
Direct support for multiple levels of action bars and pull-downs	Yes	*	No	No	No	No
Action bars and Pull-downs in a form	Yes	*	No	No	No	No
Single and multiple selection menus	Yes	*	No	No	No	No
Menus and Lists within a form	Yes	*	No	No	No	No
CUA defined help	Yes	*	No	No	No	No

Development System Features: available without programming

Field-level context-sensitive help	Yes	No	Yes	No	No	No
Optional learning mode (help always displayed)	Yes	No	No	No	No	No
Embedded User Assistance (pop-up selection lists)	Yes	No	No	No	No	No
Dictionary for storage and re-use of definitions & documentation	Yes	No	No	No	No	No
Data Editing/Validation:						
Data type/mask checking	Yes	No	Yes	No	No	No
Range/limit checking	Yes	No	No	No	No	No
Date formatting/checking	Yes	No	No	No	No	No
Validation against database files	Yes	No	No	No	No	No
Required fields	Yes	No	No	No	No	No
"Must Fill" fields	Yes	No	No	No	No	No
Zero not valid fields	Yes	No	No	No	No	No
Multiple validation points during PC processing of transaction form	Yes	No	No	No	No	No
Complete local application testing, database maintenance, interface testing, and mainframe communications simulation	Yes	No	No	No	No	No

Language Objects Available Without Low Level Programming

Display and selection from:						
In-memory lists	Yes	Yes	Yes	No	No	No
File lists	Yes	No	Yes	No	No	No
Database lists	Yes	No	Yes	No	No	No
Menu display and selection	Yes	No	Yes	No	No	No
Help at all levels: (Panel, Action bar, Menu, Form, & Field)	Yes	No	Yes	No	No	No
Error Processing	Yes	No	Yes	No	No	No
Add/update/delete/locate on:						
Sequential files	Yes	Yes	Yes	No	No	No
Database files	Yes	No	Yes	No	No	No
Host logon sequence	Yes	No	No	No	No	No
Determining 3270 screen identification	Yes	No	Yes	No	No	No
Read/Write all fields on 3270 screen with a single command	Yes	No	No	No	No	No
Determine dynamic 3270 field attribute changes	Yes	No	No	No	No	No
Dynamic modification of field attributes based on form entries						
Initial values displayed	Yes	No	No	No	No	No
Protected/unprotected fields	Yes	No	No	No	No	No

Development Environment Comparison

Object Orientation	Yes	Yes	No	No	No	No
Dictionary and documentation	Yes	No	No	No	No	No
Panel/Form painter for Creation/Maintenance	Yes	Yes	Yes	No	No	No
3270 screen capture: Picture and attributes	Yes	No	No	No	No	No
Application Generation (CASE)	Yes	No	No	No	No	No
Intelligent editor (language sensitive)	Yes	No	No	No	No	No
System/user defined templates	Yes	No	No	No	No	No
Integrated compile/test/debug	Yes	No	No	No	No	No
Keyboard re-mapping	Yes	Yes	Yes	No	No	No
Compiled environment	Yes	Yes	Yes	No	No	No
Execution-time source debugging	Yes	Some	No	No	No	No

Host Environments Supported for Peer to Peer

MVS - CICS	Yes	No	No	Yes	No	No
MVS - IDMS/DC	Yes	No	No	No	No	No
MVS / TSO	Yes	No	No	No	No	No
DOS / VSE-CICS	Yes	No	No	Yes	No	No
VM / CMS	Yes	No	No	Yes	No	No
DEC VAX / VMS	Yes	No	No	No	No	No

Minimum PC Hardware Requirements: IBM XT / Clone, 640k

*Easel does not support the SAA CUA style interface under PC/DOS only under OS/2.

Every effort to present an accurate chart has been made, however no guarantee can be made (8/7/89). Super-Link® is a registered trademark of Multi Soft, Inc., Lawrenceville, NJ. Mozart™ is a trademark of Aspen Research. Easel™ is a trademark of Interactive Images, Inc. Arbiter® is a registered trademark of Tangram Systems.

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INFRONT/RT™ (Run-time) is the run-time software that allows the developer to deliver the PC portion of the peer-to-peer or 3270 data stream applications developed using INFRONT/DS.

INFRONT/HPO™ (Host Processing Option) provides peer-to-peer communications between a PC and a host. INFRONT applications on the PC use INFRONT/HPO message protocols to communicate directly to host applications written in standard 3GLs. INFRONT/HPO takes care of interfacing to the low level communications channels, allowing the developer to concentrate on the functional requirements of the application rather than on the complex mechanics of communications.

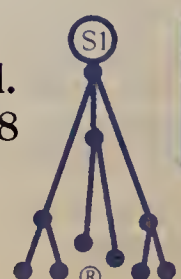
INFRONT/SDF™ (Software Distribution Facility) automates the distribution and maintenance of PC software and files. INFRONT/SDF ensures that PC users always have the correct version of their PC applications and editing tables.

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 - 70. Mining/Construction/Petroleum/Refining/Agric.
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 - 85. System Integrators, VARS, Computer Service Bureaus, Software Planning & Consulting Services
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 - 22. Dir./Mgr. Tech. Planning, Adm. Svcs., Data Comm. Network Sys. Mgt., Dir./Mgr. PC Resources
 - 23. Dir./Mgr. Sys. Development, Sys. Architecture
 - 31. Mgrs., Suprv. of Programming, Software Dev.
 - 32. Programmers, Software Developers
- OTHER COMPANY MANAGEMENT
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 - 12. Vice President, Asst. VP
 - 13. Treasurer, Controller, Financial Officer
 - 41. Engineering, Scientific, R&D, Tech. Mgt.
 - 51. Sales & Mktg. Mgt.
- OTHER PROFESSIONALS
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 - 70. Medical, Legal, Accounting Mgt.
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 - D. Communications Systems
 - E. Office Automation Systems
 - F. No Computer Involvement

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 - 60. Government - State/Federal/Local
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 - 70. Mining/Construction/Petroleum/Refining/Agric.
 - 80. Manufacturer of Computers, Computer-Related Systems or Peripherals
 - 85. System Integrators, VARS, Computer Service Bureaus, Software Planning & Consulting Services
 - 90. Computer/Peripheral Dealer/Distr./Retailer
 - 75. User: Other _____
 - 95. Vendor: Other _____
- (Please specify)

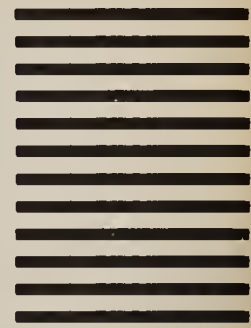
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- (Please specify)

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 - C. Microcomputers/Desktops
 - D. Communications Systems
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Revamp helps NPR hit its stride

ON SITE

BY AMY CORTESE
CW STAFF

WASHINGTON, D.C. — In 1983, National Public Radio was staring bankruptcy in the face. Today, the not-for-profit organization is about to finish a banner year, with a record \$30 million in revenue and more than 10 million listeners, its highest level ever. All things considered, that's pretty impressive.

In addition to financial support from loyal listeners and a restructuring of funding channels, much of the credit for NPR's turnaround and steady growth can be traced to an effort to revamp information systems and bring them under control.

"We had no MIS to speak of," recalled John Fredrickson, NPR's database administrator, referring to the situation a few years ago at NPR. Fredrickson characterized NPR's computer operations back in the early 1980s as "rinky-dink" decentralized systems with no coordination.

"In the last several years, we've gone from a handful of disparate systems to a Vaxcluster," Fredrickson said. More importantly, many IS functions critical to NPR's business have been centralized.

Since 1983, NPR has developed nearly 40 systems to handle tasks from satellite scheduling to fund-raising and has seen a tenfold increase in the number of users. At the same time, the IS group has added just three people, for a total of 10 staff members.

As producer and distributor of such acclaimed news programs as "Morning Edition" and "All Things Considered" for some 370 member stations nationwide and operator of the first

private satellite network, NPR is not a typical organization. Because of its unique requirements, most software applications are developed internally, according to Fredrickson.

He attributes NPR's ability to develop so many applications without significantly increasing staff to the increase in productivity gained by the 1985 move from Digital Equipment Corp. PDP/11s to VAXs and the use of relational database and fourth-

generation language tools from Software AG of North America, Inc. With that leap in technology, Fredrickson said his team was able to build a lot of systems quickly.

been tamed, the applications have to be maintained. So, to keep up productivity levels and speed development of new applications, Fredrickson is looking to computer-aided software engineering technology. NPR recently acquired Software AG's Macintosh-based Natural Architect and has been experimenting with automated entity relationship diagramming to design applications. An Architect gateway moves the designs from the Apple Computer, Inc. Macintosh to the cluster of four VAX 8350s and into Software AG's Predict data dictionary. The next step, Fredrickson explained, will be to implement Natural Construct to read specifications from the dictionary and generate Natural code.

Because it is not-for-profit, NPR must support its operations with a smaller staff than many public stations. "If we continue to get increased productivity, we won't have to hire new people," Fredrickson said.

One of the key achievements in overhauling NPR's information systems has been a centralized customer information system (CIS) that manages all information related to member stations, Fredrickson said.

Seven years ago, each department within NPR maintained its own — sometimes redundant — customer information database. Today, the CIS database serves as the core for all peripheral systems that deliver to customers.

All four divisions of NPR — distribution, programming, representation and administration — use the CIS database. For instance, a system, using each sta-

tion's coordinates, was developed to predict the satellite interference that occurs twice a year when the sun causes transmission blackouts.

Accounting functions have also been brought under control. In the past, each department had its own "shoebox" accounting functions, Fredrickson said, which contributed to NPR's financial problems.

Today, all applications have accountability built in and are integrated with the Collier-Jackson, Inc. accounting software used by NPR. For instance, a satellite scheduling system has a charging and payment module for billing customers built in, so that information is automatically loaded into accounts receivable.



IF WE continue to get increased productivity, we won't have to hire new people."

JOHN FREDRICKSON
NATIONAL PUBLIC RADIO

generation language tools from Software AG of North America, Inc. With that leap in technology, Fredrickson said his team was able to build a lot of systems quickly.

"We went into heavy development mode," Fredrickson recalled. Indeed, 24 of those applications were developed in just two years.

Now that NPR's backlog has

APL poised to move beyond its small, but loyal, coterie

ANALYSIS

BY JEAN S. BOZMAN
CW STAFF

SANTA TERESA, Calif. — IBM's 24-year-old APL programming language may get a boost designed to drive it from stagnation into new growth areas. The interpretive language — known for its hieroglyphic-looking notation system of 60 abstract symbols and its mathematical conciseness — has a hard core of loyal users.

Now, officials at IBM's development laboratory here are trying out new APL applications in supercomputing, image-processing and prototyping. Last month, IBM kicked off a series of nationwide seminars promoting APL's use on supercomputers.

While analysts and users alike said APL has the potential to be used with supercomputers and relational databases, they noted that, other than the seminars being promoted by a handful of people at the lab, there is little indication that the company is actively pushing the language.

Typical of APL's new direction is a University of Chicago project that uses APL to detect patterns in millions of data points generated by electron microscopes. Oscar Kapp, a longtime

APL user, is refining the image processing applications at the university's Enrico Fermi Institute. "Image processing has become extremely important in recent years, as we recently saw with the enhancement of the Voyager pictures from Neptune," Kapp said. "We have designed an APL interface that allows us to directly address thousands of data points on a high-resolution screen."

Another new use, Kapp said, is the emergence of APL as a supercomputing language. IBM's 32-bit version of APL/2 allows scientists at Cornell University and the Thomas J. Watson Research Center in Yorktown Heights, N.Y., to address both the scalar and the vector sides of an IBM 3090 with Vector Facility. Kapp is planning to use the IBM 3090 vector/scalar computer, tapping into it through long-distance, high-speed lines from his IBM 4381.

APL already runs on one of the widest ranges of IBM hardware, starting with the PCjr and running through the IBM 4300, 9370, 3080 and 3090 series, said James A. Brown, APL chief architect at Santa Teresa.

Brown claimed that applications developed on a user's home PC can be run — without change

Continued on page 29

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A multiprocessor gauntlet thrown down by Concurrent

BY ROBERT MORAN
CW STAFF

TINTON FALLS, N.J. — Concurrent Computer Corp. is vaunting a real-time challenge to Digital Equipment Corp.'s VAX 6000 Models 300 and 400 with two new multiprocessors.

According to Concurrent, the real-time architecture of the Microthree MPS and the Microfive MPS offers faster response and better price/performance and

systems expansion than the DEC processors.

The two multiprocessors, which are slated to ship in November, use the OS/32 operating system and are therefore compatible with the company's Series 3200 line of real-time processors.

The Microthree MPS, which is made up of two processors at 3.9 millions of instructions per second (MIPS) each and 16M bytes of main memory, costs \$180,000. The larger Microfive MPS,

which contains two 6.8-MIPS processors, costs \$260,000.

The firm said that the Microthree offers up to 30% better price/performance than the VAX 6000 Model 300, and the Microfive offers up to 25% better price/performance than the VAX 6000 Model 400.

According to Andrew Wachs, the Series 3200 product line manager, the multiprocessing configuration permits real-time operations and general computational processing to run in parallel.

"The new models respond to high priority interrupts in about 15 microseconds — about half the time required for the VAX models," Wachs said.

With the DEC methodology, the VAX

6000 separates the real-time and computational subsystems. Wachs said that the approach requires two different platforms and two operating systems, which complicates configurations and increases cost.

The new multiprocessors, which occupy about 5 sq ft of floor space, use the same board set as the company's uniprocessors, the Microthree Expanded System and the Microfive ES, which Concurrent introduced last April.

However, Concurrent does not offer an upgrade to the new models, which are packaged on a larger chassis to support the additional processors and I/O, the company said.

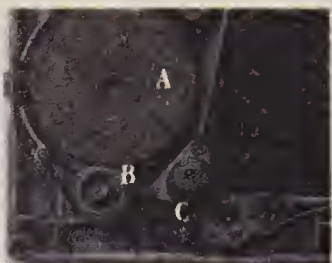
The new systems are expected to be placed in beta-test sites within a few weeks.



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SOFT NOTES

MITI to form corporation

Japan's Ministry of International Trade and Industry (MITI) will establish a corporation to manage its 4-year-old Sigma Project, launched to develop a common interface based on AT&T's Unix System V and improve software development in Japan. An official statement has not been made, although a MITI official revealed that the plan is being discussed with the Ministry of Finance. MITI began the Sigma Project in 1985 by creating a Sigma system development team.

Interactive Data, a Dun & Bradstreet Corp. company, has formed an alliance with **Merrin Financial, Inc.** to provide an automated link between Interactive Data's Passport portfolio accounting and performance measurement system and the Merrin Financial Trading System. The link is intended to automate the process by which trades and records of transactions are relayed from the trading desk to the back-office portfolio management operation.

Apogee, a fourth-generation language from **Binary Research, Inc.** in Fort Washington, Pa., has been ported to Unisys Corp.'s 6000/70 7000 U series processor. Apogee runs under several Unix versions, including Xenix and IBM's AIX as well as MS-DOS.

Computer Corp. of America (CCA) in Cambridge, Mass., said it will market and support Armis, a performance monitoring and analysis tool. Armis is a product of Computer Business Methods, Inc., in Arlington, Va., and was developed exclusively for CCA's Advantage series of products.

Clyde Digital Systems in Orem, Utah, will distribute The Security Toolkit, a security analysis package for the Digital Equipment Corp. VAX from Cubic Systems Pty. Ltd. in Sydney, Australia. Price varies depending on configuration.

Savage

CONTINUED FROM PAGE 23

Pyrotechnics and flashy production are fine, users say, but why can't they get information on HP's latest products from their sales reps? When is the company going to advertise? Why do data processing managers bust their butts making applications run on minicomputers when IBM comes in and dazzles their top management, convincing them to go bigger and definitely bluer? Several users complain that HP sales reps have to get to know their own product lines.

It appears there's a major breakdown in communication between HP headquarters and the sales force in the great outland of America. HP executive Bill Murphy, after being nailed by users loudly and repeatedly with these issues, could only answer in a sheepish affirmative.

Murphy admits that the company has been behind in the last five years. "On major accounts we've been on probation," he says. Now, he says, Hewlett-Packard has all the "stuff" — the broad product offering — that a major account needs. All he has to figure out is how to get through to those users.

That sales force has long been culled from engineering ranks, not exactly known for their aggressive nature, agrees Bob Grenoble, Interex president. So how does a company instill a new aggressive image in its front lines? Sales boot camp? Bruce Springsteen lessons?

"Some of them will think they've been to boot camp," Murphy says. His plan is not to rent a university for two or three days but to get the sales force up to speed more gradually. The sales reps will have it drilled into them that they have to look at a customer's business problems and offer business solutions rather than pushing hot technology.

Savage is a *Computerworld* West Coast correspondent.

IBM

CONTINUED FROM PAGE 23

Amy Wohl. "Everybody wins. First of all, DIS represents a very creative idea from Metaphor: allowing noncomputer people to do sophisticated things with data. The partnership gives customers a product they need with better support, lets IBM sell an innovative product and gives Metaphor the support and delivery system it needs."

The difference between DIS and executive information systems (EIS) is that EISs are not designed to give users real-time access to a large corporate database, Cragan said. Wohl added that "DIS offers tools for the manipulation of data, while the executive information system provides data to those who are going to see results, not use tools."

DIS allows users to analyze specific business situations by connecting icons, which translates into writing programs. The product blends into San Marchi's overall Systems Application Architecture (SAA) strategy, which includes using relational databases.

Cragan acknowledged that where DIS diverges from SAA is in the Common User Access (CUA), but said that IBM will "converge the DIS and CUA interfaces over time."

Unisys

CONTINUED FROM PAGE 23

drawback to the M9720 is its lack of cache memory. The older disk subsystems, such as the 8480, come with a cache, which Bechtold said is particularly important for certain database applications.

As a result, Bechtold plans to hold onto a few 8480s with caches for these applications and use the new models for applications that do not require a cache capability.

Bechtold also cautioned that his performance data is still considered preliminary, since more testing will be done, but he said the initial results show that the

new unit sustained a rate of 107 I/Os per second with a response time of 30 msec.

In comparison, a noncache 8480 maintaining the same response time would not perform at a rate of more than 50 I/Os per second.

The Data Systems Division for the County of Orange in California is another Unisys user that claims the M9720 has solved its problems.

"We have a tremendous space constraint," said Leo Crawford, manager of the Data Systems Division. "The power was at its limit, the air-conditioning was at its limit, and we needed more disk space."

Crawford said he looked at another Unisys offering, the 9494, which was introduced after the 8480 but wasn't "a big leap forward."

"We talked to them about the 9494, but it was a reluctant conversation," Crawford said. "We kept asking, 'Don't you have something better?' They finally told us they had something new going into testing."

Crawford said he plans a "wholesale swap-out" with the M9720s, which will replace the 8470s, 8480s and 8481s. He said the new unit will use 75% less floor space than the machines he is now using.

Crawford said that some preliminary tests were run on the M9720 last week, but he was reluctant to provide crude data.

However, he said, "The first look shows it's a very good device. It will be a great device, unless something unexpected comes up."

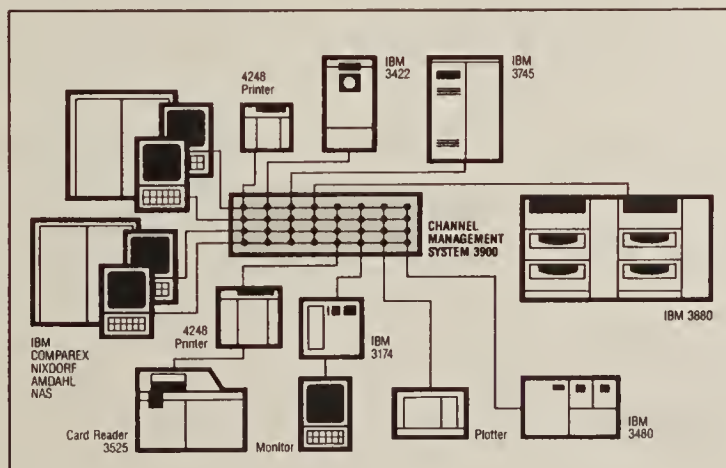
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APL poised

FROM PAGE 25

— on a mainframe. However, each computer must have a machine-specific compiler to translate the APL code.

Even with its presence on so many platforms, APL has not been named a Systems Application Architecture language. IBM executives gave no reason for the omission.

Flat market

There may be as few as 7,700 mainframe licenses for APL worldwide, according to International Data Corp., a Framingham, Mass., market research firm. "I think the market for APL is flat, to put it kindly," said Robert P. Tasker, vice-president of software research at IDC. "You will find that APL users are fiercely loyal. But it's kind of a closed society that's not expanding." The most recent APL worldwide user conference, held this summer in New York, drew about 500 attendees.

APL has been used to analyze actuarial statistics, keep inventory of maritime vessels, support the National Aeronautics and Space Administration's space missions and find trouble areas for investment portfolios.

"You can have a complete application written in just a few lines of APL code," said Ed McDonald, division manager of information processing at Texaco, Inc. in Houston. "It has very powerful [mathematical] operators that are designed to work on matrices of objects. In that respect, it really was the first object-oriented programming language." Its symbols represent powerful mathematical functions in a minimal amount of code.

APL's users praise its portability and conciseness. Some programmers claim that APL is five to 10 times as concise as normal programming code. Its system overhead resides in just 150K bytes of memory.

But APL code is hard to analyze, at least for users other than the original programmer. One reason, Kapp said, is that the nonprocedural code tends to reflect the style of its author. "People write APL code as differently as they would write a letter," Kapp said. "There are many ways of doing the same thing efficiently." Nevertheless, he added, APL has a built-in debugger that can pinpoint a coding error caused by incorrect APL syntax. APL can be changed on the fly, allowing users to change code on-screen.

Users say APL forces them to

think in three dimensions — mostly because what APL does best is to operate on columns, or arrays, of numbers. "It requires a different kind of thinking from most programming languages," said Paul R. Conrad, manager of APL Development at the Santa Teresa laboratory. "Instead of

viewing problems procedurally, as a series of steps, APL allows you to view it in three dimensions, as a spatial problem."

Despite the potential APL holds for relational DBMS applications, supercomputing and vector-processing, industry analysts would be surprised to see

any bandwagon develop for APL in the user community. "There are a lot of other, user-friendly ways to do what you can do with APL," Tasker said. APL is most likely to survive, he said, as a productivity tool for scientists and for those who manipulate large arrays of numbers.

A language classic

APL is unlike any other programming language. It doesn't have any "do" loops or procedural-programming baggage. It was designed by its creator, Kenneth Iverson, as a notation system to describe the IBM 360. Iverson wrote APL while teaching computer science at Harvard University in 1957 — and refined it after joining IBM in 1960.

Iverson said APL was intended as an educational tool. "People should recognize that it's a superior form of mathematical notation that can have tremendous benefits in teaching mathematics." Iverson, who founded the Canadian firm I. P. Sharp in Toronto, said he had little feeling for its current commercial applications. He has since retired from I. P. Sharp and IBM.

APL first appeared on the IBM 7090 scientific processor in 1965 and was packaged with the IBM 360 in 1966. A virtual-memory version appeared in the 1970s, allowing on-line, interactive programming. The modern APL/2 ver-

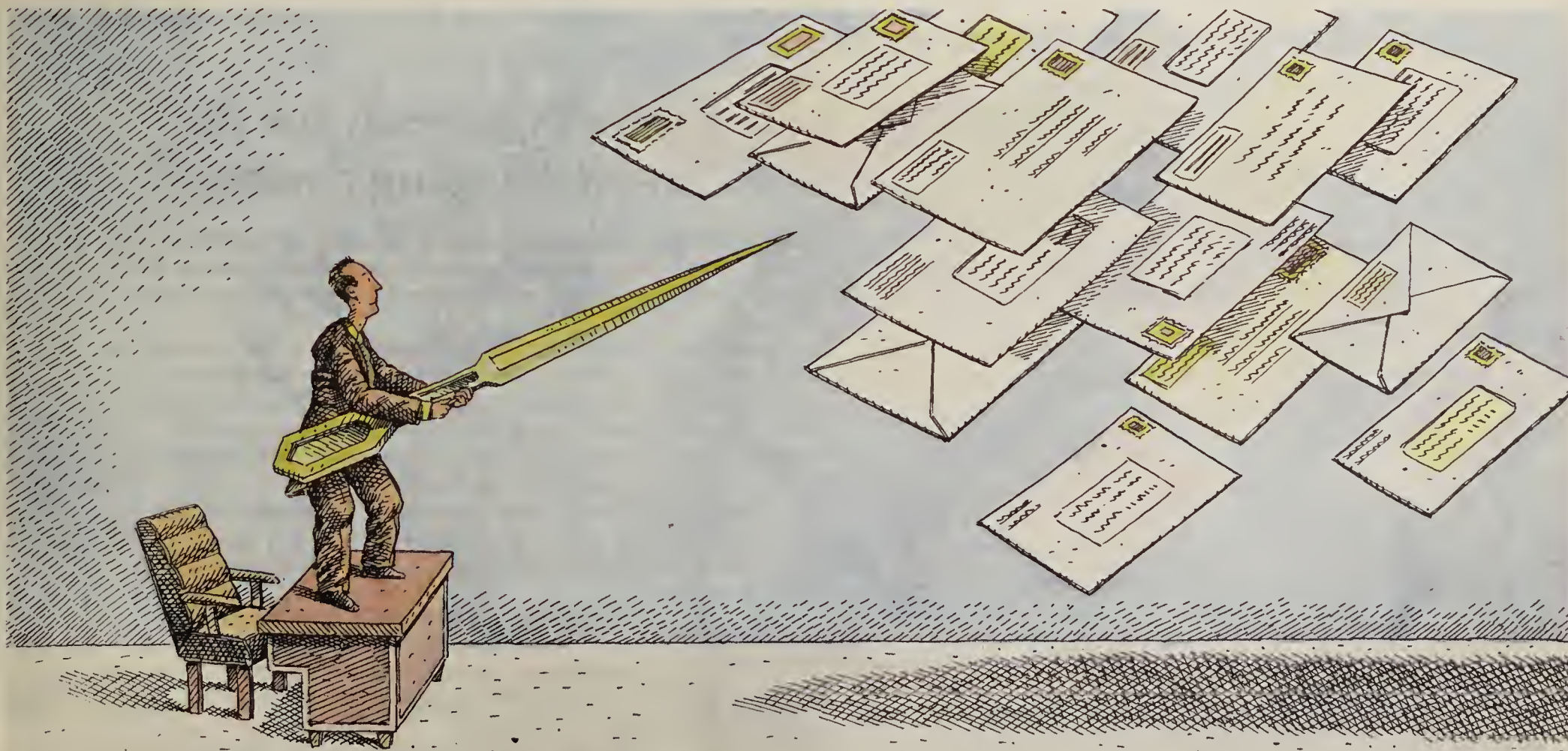
sion was introduced in 1984, and one for the IBM Personal Computer came out last year.

In early versions, APL's archaic symbols — some were adapted from the Greek alphabet — had to be jammed onto a modified IBM Selectric typewriter ball and required special video terminals. Current models of IBM PCs project the symbols on-screen with bit-mapped displays.

APL, with its oddities, has so far gained a hardy band of admirers, but it has failed to attract a broader audience. Many APL users delight in the uniqueness of their language. Some devise APL jokes based on math concepts such as "null sets" — which gain them a \$10 prize at annual APL meetings.

APL is popular overseas, in part because it requires little knowledge of English. It is supported in 13 world languages, including Hebrew and two forms of Japanese notation. APL licenses start at \$500 and are priced according to system size. APL/2 PC costs about \$200.

JEAN S. BOZMAN



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NEW PRODUCTS — SYSTEMS

Processors

Data General Corp. has unveiled a 16-in., 12.5-MHz Motorola, Inc. 68000-based display station designed as an alternative for applications that require workstation-quality graphics resolution and windowing capabilities but do not need the power of a high-end workstation or personal computer.

According to the company, the AVX-30 X Window Display Station complements DG's Avion AV/5000 and AV/6000 family of 88000 reduced instruction set computing-based Unix workstations and servers. The product reportedly provides a basic textual, graphical and windowing system platform that serves as host to a variety of user interfaces and window managers. It is priced from \$2,795.

Data General
3400 Computer Drive
Westboro, Mass. 01580
508-898-4051

Sanyo/Icon International, Inc. has announced a multiuser computer system designed to merge mainframe performance with 1/2-in. tape backup capabilities in a

single-cabinet enclosure.

The Model 3300 is especially suited for departmental computing and can concurrently operate Pick Systems, AT&T Unix System V and MS-DOS software, the vendor said.

The system reportedly supports as many as 96 users, each sharing up to 70M bytes of memory and 2.1G bytes of disk storage. System pricing starts at \$49,950.

Sanyo/Icon International
764 E. Timpanogos Pkwy.
Orem, Utah 84057
801-225-6888

McDonnell Douglas Information Systems Co. has reconfigured its Series 6000 computer systems to utilize application-specific integrated circuits technology.

The revamped Series 6000 machines are based on a proprietary CPU architecture that provides a reported performance increase of up to 70% over previous offerings.

The company has also announced tape subsystems and upgrade kits that allow most currently installed Series 6000 systems to be upgraded. The products are available in tower and low-boy cabinet enclosures and

offer either 1M or 2M bytes of memory.

Pricing ranges from \$20,000 to \$44,500.

McDonnell Douglas
P.O. Box 19501
Irvine, Calif. 92713
714-250-1000

Data storage

Dataram Corp. has introduced four memory upgrade boards designed specifically for use in Digital Equipment Corp.'s recently announced Vaxstation, Microvax and Vaxserver 3100 systems.

The DR-3100VS boards are available in 8M-, 12M-, 16M- and 24M-byte configurations and are offered with a lifetime warranty and 30-day trial period, the company said. Pricing ranges from \$5,400 for an 8M-byte unit to \$13,800 for the 24M-byte expansion board.

Dataram
P.O. Box 7528
Princeton, N.J. 08543
800-822-0071

Meridian Data, Inc. has announced a combination of products and support services that enable a user to place up to 30,000 pages of information on a compact disc, allowing users to test the technology's viability.

The CD Excellerator program reportedly consists of a compact disc/read-only memory (CD-ROM) drive, MS-DOS Extensions software from Microsoft Corp., a license for Dataware Technologies, Inc.'s CD-ROM publishing software, publishing training and production of a physical CD-ROM containing the user's information. According to the company, the program adheres to the ISO 9660 file-format standard and provides the drive and software so that the disc can be accessed by employing a personal computer.

The program sells for \$4,995.

Meridian Data
5616 Scotts Valley Drive
Scotts Valley, Calif. 95066
408-438-3100

I/O devices

Ciprico, Inc. has announced a Motorola, Inc. VMEbus small computer systems interface (SCSI) host bus adapter for Sun Microsystems, Inc. workstations.

According to Ciprico, applications of the Rimfire 3523 Host Bus Adapter include high-performance on-line disk storage, software installation and distribution, and optical disk or tape

backup. Users can boot a workstation from both SCSI disk and SCSI tape drives, according to the company.

The product can support 5M byte/sec. synchronous SCSI transfer rates on a variety of storage systems. It sells for \$1,695.

Ciprico
2955 Xenium Lane
Plymouth, Minn. 55441
612-559-2034

Xerox Canada, Inc. has announced a 24 page/min. laser printer designed specifically for the Digital Equipment Corp. environment.

The XT2492 Laser Printstation is reportedly based on the Xerox 3700 engine and offers a resolution of 300 by 300 dot/in. The five standard emulations include DEC's LN03 Plus, Tektronix, Inc.'s 4014, Hewlett-Packard Co.'s GL and Laserjet II and Xerox's Diablo 630 ECS. There are several interfaces, including one for Ethernet; 68 resident fonts; and four possible page orientations, according to the company.

The unit sells for \$35,995.

Xerox Canada
5650 Yonge St.
N. York, Ont., Canada
M2M 4G7
416-733-6410



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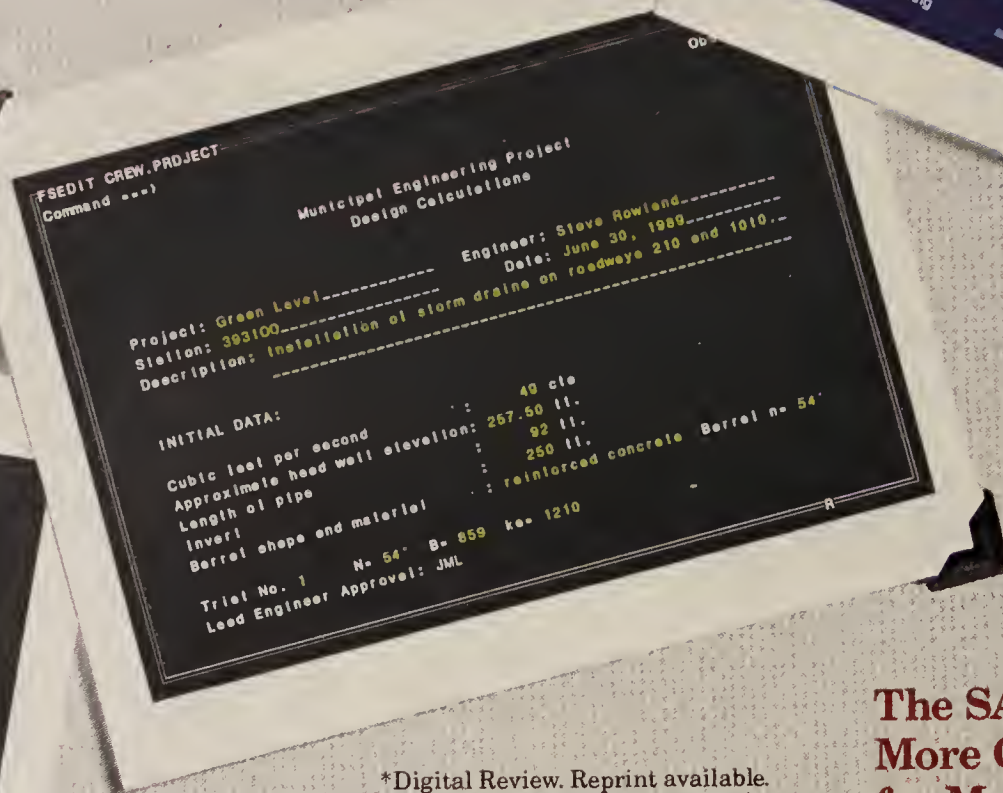
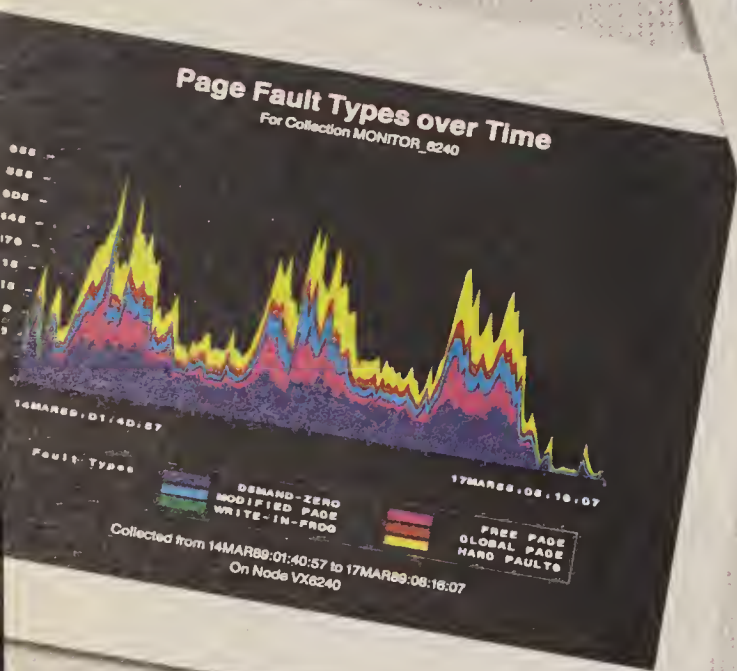
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Fax (919) 469-3737

NEW PRODUCTS — SOFTWARE

Database management systems

Recital Corp. has announced a version of its relational database management system and fourth-generation language that is tailored specifically for Intel Corp. 80386-based machines running under AT&T Unix System V.

The 386 version of Recital is said to be fully compatible with several other products, including Fox Software, Inc.'s Foxbase+, Ashton-Tate Corp.'s Dbase III Plus and Nantucket Corp.'s Clipper. The software includes before-and-after imaging functions, a data dictionary and pull-down menus.

A single version is priced at \$995, and multiuser versions are available for \$1,495.

Recital
15760 Ventura Blvd.
Encino, Calif. 91436
818-990-1235

CDB Software, Inc. has announced a direct-access storage device (DASD) management tool designed to move IBM DB2 data sets and identify and recover wasted DB2 DASD space.

Dubbed DB2-DASD, the product also displays DASD space information about DB2 data sets and can show exception lists of data sets, the vendor said. The software maintains DASD usage history for trend analysis and capacity planning, and all of the information is available on formatted, scrollable screens. A perpetual license is available for \$20,000.

CDB Software
P.O. Box 771624
Houston, Texas 77215
713-988-0061

Bachman Information Systems, Inc. has released an enhanced version of its database administrator package for managing physical database design.

According to the company, Version 2.1 of the Bachman/Database Administrator is more powerful in applying IDMS knowledge to database design and runs faster than the previous version.

Users of Bachman's IDMS product can now capture Cobol file descriptions to enhance their IDMS designs or import data designs from other computer-aided software engineering tools, the company said.

Priced from \$10,000, the software requires an Intel Corp. 80386-based IBM or Compaq Computer Corp. workstation with 16M bytes of memory and a 60M-byte hard disk.

Bachman
4 Cambridge Center
Cambridge, Mass. 02142
617-354-1414

System software

Tadpole Technologies, Inc. has developed a multithreaded, multiprocessor standard Unix operating system for 88000 reduced instruction set computing architectures.

According to the vendor, TP-IX/88K focuses on high-performance virtual processor concepts and offers an improved file system implementation. Other reported features include a new device driver interface, an enhanced user interface and a modular design approach.

Slated for November delivery, TP-IX/88K includes the full AT&T utility set, compiler technology and networking software based on the AT&T Unix System V, Release 3.2 File System Switch and Streams Interface.

Tadpole Technology
1601 Trapelo Road
Waltham, Mass. 02154
617-890-7573

Utilities

Electronic Service Specialists Ltd. has announced a stand-alone software package that monitors error conditions on Digital Equipment Corp. VAX and Microvax VMS systems.

Called Pro-Guard, the product provides applications for both self-maintenance and third-party maintenance companies, interrogates a CPU and peripherals for errors or degradations and lets systems managers set alarm parameters based on either error level or rate.

Pro-Guard costs \$595 and is licensed on a per-CPU basis.

Electronic Service Specialists
N92 W14612 Anthony Ave.
Menomonee Falls, Wis.
53051
414-255-4634

Cognitive Data Systems, Inc. has announced an MVS/JES2-based software system designed to combine automated operations and automated scheduling capabilities.

The Automated Scheduling Assist Program provides the capability to schedule tasks for execution at any future day and time up to years in advance with one-minute precision, according

to the vendor. Installation reportedly requires less than two hours. The product is priced at \$3,250. First-year maintenance is provided free.

Cognitive Data Systems
901 Pinebrook Drive
Lombard, Ill. 60148
312-495-1110

Phoenix Data Communications Corp. has announced a terminal control software utility package for users of Unisys Corp. and former Burroughs Corp. systems.

According to the company, Softkey Utility enables users to configure the function and other programmable keys of their terminals and to incorporate multiple keystrokes into a single-key function. The software reportedly can be used with any small, medium or large Unisys processor and is priced from \$1,500.

Phoenix Data
Suite 4
378 Main St.
E. Greenwich, R.I. 02818
800-325-5530

Q/Auditor PL/1, a quality assurance software tool developed specifically for PL/1 programs, has been announced by Eden Systems Corp.

It includes a metric inventory that enables organizations to se-

Continued on page 35



"This system just can't process claims fast enough. And that makes for a lot of dissatisfied customers."

September 19, 1989 IBM makes AD/Cycle a reality. FOCUS and LEVEL5™ were there.



Again.

Information Builders Announces Support for IBM's AD/Cycle Application Development Strategy

New York, NY (September 19, 1989) — In a continuation of its role as a strategic IBM SAA* software partner, Information Builders, Inc. today announced its intent to fully support AD/Cycle, IBM's SAA application development framework, through the integration of the FOCUS 4th Generation Language and the LEVEL5™ Knowledge Based Application Development System with IBM's AD/Cycle.

—IBI Announcement
September 19, 1989

Again, Information Builders has committed to fully supporting IBM's SAA initiative. As a strategic IBM SAA software development partner, IBI will support the AD/Cycle application development framework with the FOCUS 4GL and LEVEL5 knowledge base application development system.

We were there on May 16 for IBM's introduction of OfficeVision. We were there again supporting AD/Cycle. Here's why:

Today, FOCUS and LEVEL5 deliver complete application development to all SAA hardware and software environments including MVS, VM, OS/2, and shortly, to OS/400. This powerful combination will deliver:

SINGLE LANGUAGE SOLUTION FOR ALL PLATFORMS

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COMMON USER INTERFACE FOR ALL APPLICATIONS

Develop 100% CUA-complaint applications for any SAA environment, and run those applications in any environment FOCUS and LEVEL5 supports.

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FOCUS and LEVEL5 transparently accesses data from any major DBMS platform in use today, including DB2, SQL/DS, IMS, VSAM, the OS/400 native DBMS, and OS/2 Extended Edition Database Manager.

COOPERATIVE PROCESSING BETWEEN WORKSTATIONS AND HOSTS

Using FOCUS and LEVEL5 client/server architecture and SAA communications protocols, you'll be able to offload expensive processing power from host systems and economically share the load with all FOCUS and LEVEL5 supported workstations.

SUPPORT FOR ALL ENVIRONMENTS

FOCUS and LEVEL5 will extend the benefits of SAA beyond the SAA environments. The FOCUS and/or LEVEL5 solutions are also available for VAX, Hewlett Packard, Tandem, Wang, Macintosh, and a variety of UNIX-based systems including Sun, Apollo and AT&T.

For more information on what IBI is doing to achieve SAA compliant products, send for our free SAA Implementation kit. Write to Information Builders, 1250 Broadway, New York, NY 10001, or call (212) 736-4433, Ext. 3700.

Information Builders, Inc.

 **FOCUS**

 **LEVEL5**

Continued from page 33

lect and measure a range of programming conditions from simple programming standards to scientific complexity metrics, the vendor said. The software provides a one-page audit report said to portray a program's performance graphically based on the metrics selected.

The product runs in the IBM MVS operating environment. A CPU license is \$30,000. A free 30-day trial is available.

Eden Systems
Suite 201
14950 Greyhound Ct.
Carmel, Ind. 46032
317-848-9600

Compilers

Language Processors, Inc. (LPI) has announced that its Cobol-85 compiler is available for NCR Corp. Tower computers; the Sun Microsystems, Inc. Sun-3; Intel Corp. 80386-based Unix and Xenix systems; the Hewlett-Packard Co. 9000 Series 300; and the AT&T 3B2.

Version 5.70 of LPI-Cobol is reportedly X/Open-compliant, supports a screen section with display options, supports both ANSI Cobol-85 and -74 and provides extensions to allow compatibility with other versions of Cobol. Prices start at \$995 for

Intel 80386-based and single-user systems, varying with configuration.

LPI
959 Concord St.
Framingham, Mass. 01701
508-626-0006

Alsys, Inc. has introduced an Ada compiler for the Intel Corp. 80386-based Unix market.

The Alsys Ada Compiler for 386 Unix is reported to be fully functional on any 386/IX machine, including Compaq Computer Corp.'s Deskpro 386, Multitech's 1100, Prime Computer, Inc.'s EXL 320 and the IBM Personal System/2 Model 80. Either Interactive Systems' 386/ix 1.04/1.06 or AT&T's Unix System V.3 operating environments may be used.

The compiler is priced at \$3,095.

Alsys
1432 Main St.
Waltham, Mass. 02154
617-270-0030

A C compiler package for the Motorola, Inc. 68000 family of processors has been introduced by Lattice, Inc.

Designated the ES68 C Development System, the compiler is said to be ANSI-compatible and will run in DOS, OS/2, Digital Equipment Corp. VAX/VMS,

Sun Microsystems, Inc. Unix and Apollo Computer, Inc. Unix environments.

The product incorporates the compiler, a global optimizer, macro assembler, more than 140 library functions, an integrated editor and a load-module builder, the vendor said. Pricing starts at \$900.

Lattice
2500 S. Highland Ave.
Lombard, Ill. 60148
312-916-1600

Applications packages

An upgrade of a resource accounting and chargeback system for the Unisys Corp. OS 1100 environment has been announced by Computer Associates International, Inc.

Called CA-RMS1 Version 2.13, the software reportedly extracts data from system log files and site-specific data elements to track system resource utilization, consolidating the information into a single internal billing notice, detail or summary report.

The package can also be used for on-line budget management.

The product is licensed for \$23,000 to \$40,600 per CPU, depending on the size of the machine.

CA
711 Stewart Ave.
Garden City, N.Y. 11530
516-227-3300

Compinfo, Inc. has announced that its Lawpack software, which previously ran on Wang Laboratories, Inc. VS systems or IBM 9370 computers and mainframes, is now available for the Digital Equipment Corp. VAX computer series.

Lawpack VAX reportedly includes time and billing, internal charges, accounts payable, work in progress, cash receipts and general ledger modules. Several additional modules are available optionally, such as docket control and conflict of interest, the company said. The software is priced from \$35,000 to \$150,000, depending on the type of processor, number of users and module selection.

Compinfo
381 Park Ave. S.
New York, N.Y. 10016
212-532-7777

Genesys Software Systems, Inc. has announced an addition to its payroll system that can produce a check on demand for payroll, a bonus, a retroactive paycheck or termination.

The On-Line Check feature of the Genesys Payroll system re-

portedly calculates the pay and deductions, displaying the results on a terminal screen for review prior to actual printing of the check.

Running on IBM mainframes and the midrange 9370 system, the price for either the DOS or OS version of the Genesys Payroll system ranges from \$50,000 to \$100,000.

Genesys Software Systems
5 Branch St.
Methuen, Mass. 01844
508-685-5400

IBS Corp. has introduced a program that provides conference call capabilities for CICS users.

Called Quick-Talk, the program reportedly allows two or more users to share the same screen of information, regardless of their individual location. The software also features a trace and data stream analysis function that detects and traps errors in the data stream and provides an on-line diagnosis of those errors.

Quick-Talk is available immediately for IBM MVS/XA installations. The price is \$10,000 per CPU.

IBS
Suite 700
4660 La Jolla Village Drive
San Diego, Calif. 92122
619-452-6045.

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COMPAQ

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PCs & WORKSTATIONS

M I C R O B I T S

Patricia Keefe

Safety in numbers?



People who live in glass houses . . .
"Just because a bunch of vendors get together and mandate that something is a standard doesn't mean that it is."

This absolutely true statement becomes worthy of note only when you consider the source — Microsoft.

This happens to be the same company that is constantly trying to strong-arm vendors — sometimes with IBM's assistance — into rallying around a particular product or technology. These are the guys that don't like to announce anything unless they can pad the press packet with testimonials from at least five vendors — 10 are even better. Just take a look at the OS/2, LAN Manager and SQL Server announcements.

Continued on page 40

Inside

- A busy man at Hughes Aircraft. Page 39.
- Visix says its desktop manager eases the Unix way. Page 39.
- Wordperfect tacks on presentation graphics. Page 42.

Screws turning on Ashton-Tate

ANALYSIS

BY PATRICIA KEEFE
CW STAFF

Most of us get by with a little help from our friends. But when a key friend failed to come through recently, Microsoft Corp. was forced to take that sentiment a step further by tapping a mutual "friend" to link its back-end SQL Server to a competitor's front end.

Microsoft announced two weeks ago that it had commissioned Automated Design Systems (ADS), an Atlanta-based value-added reseller (VAR)

whose services it shares with Gupta Technologies, Inc., to build an add-on library that will allow developers to create Microsoft Windows-based client software for SQL Server using Gupta's SQL Windows.

The Gupta language is the only SQL Server front end currently on the market.

The announcement is expected to increase the pressure on SQL Server development partner Ashton-Tate Corp. to finish its Dbase IV front end, said analysts and industry insiders — especially now that desktop rival Lotus Development Corp. has bought a 15% stake in Sybase,

Inc. [CW, Sept. 25].

"Ashton-Tate is up against the ropes," said Richard Shaffer, publisher of "The Computer Letter," an industry newsletter. He said there is no reason why Lotus' 1-2-3 spreadsheet, which he suggested was as much a part of American culture as singer/composer Michael Jackson's face, would not be acceptable as a front end to SQL Server.

In fact, Lotus and Sybase said that their first project will be to ensure that 1-2-3 Release 3.0 can be connected to SQL Server.

Richard Finkelstein, a database analyst with Performance Computing, said the SQL Win-

dows agreement will spare Microsoft from having to rely so heavily on Ashton-Tate, which is also charged with setting up a distribution channel for SQL Server.

"This is absolutely a slap at Ashton-Tate," crowed Rod Zimmerman, Gupta's manager of product marketing. "We thought [Microsoft was] aligned with Ashton-Tate. If they had delivered, Microsoft would not be spending money on SQL Windows. We were surprised that Microsoft was so enthusiastic about [our front end] to the extent that they would pay a VAR to make the connection for them."

It is not only Ashton-Tate that is late, however. Zimmer-

Continued on page 40

Xerox system turns PC into photo developer

BY RICHARD PASTORE
CW STAFF

Xerox Imaging Systems turned the IBM Personal Computer into a photographic darkroom with the release of its Gray F/X image processing software.

Gray F/X allows PC users to adjust and edit the image of black-and-white photos that have been optically scanned into the system.

Adjustments to picture contrast, gray scale and tone, formerly possible only in a darkroom, can now be done with a keyboard and mouse, according to Xerox.

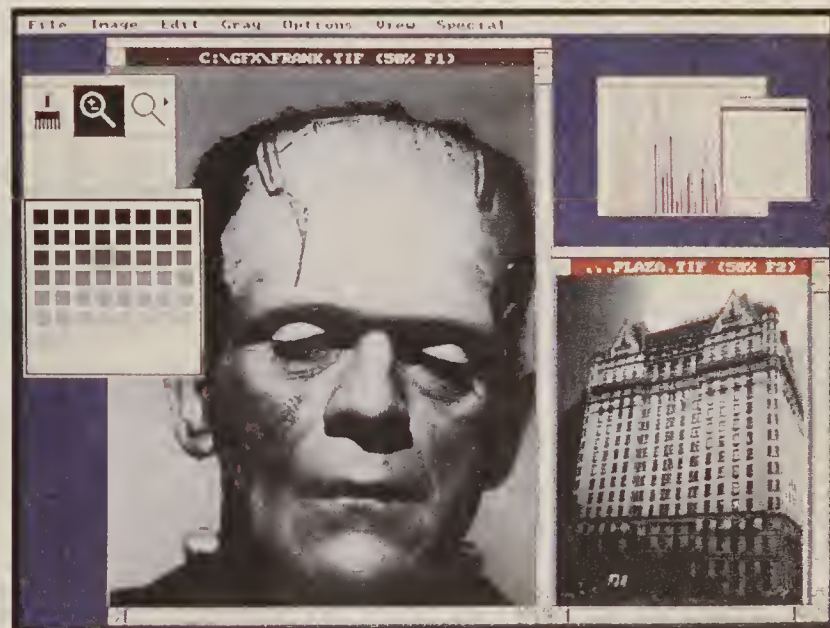
The package is pitched to-

ward high-end desktop publishing users, a Xerox spokeswoman said. The product's chief advantages are the time savings and versatility it affords publishers who are not satisfied with using a photo as is or who cannot afford the time or access to a darkroom, she said.

Multiple images

Gray F/X also features a multiwindow environment that allows users to display and edit up to 10 different photographic images at one time.

With this feature, photo tones can be compared side by side; users would no longer have to go through the trouble of making



Photos from fright to height on an IBM PC with Gray F/X

hard copies for comparisons, according to Xerox.

The \$495 package requires an IBM PC AT or compatible with a hard disk, 640K bytes of random-access memory and an

IBM Video Graphics Array card. It was designed to support 15 scanner models and 20 printers, the firm said.

Xerox said Gray F/X is slated to ship Oct. 15.

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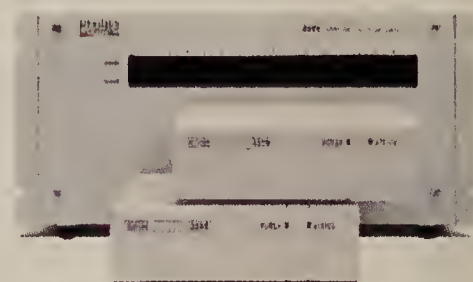
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S M A L L
T A L K

Douglas Barney

Getting
down to
business

Get down. Information systems pros in the know understand the route to prestige and promotions. In more and more cases, to move up you've got to get down.

Only a boob would argue (though many still do) that mainframes are obsolete. Clearly, these big beasts excel at I/O-intensive tasks and are unmatched for handling certain large sets of data. But many new applications, as well as many existing applications, are most effectively served by more and more powerful microcomputers.

If you don't decide that this is the case, your president or chief executive officer may just decide for you.

The worst thing, though, is to get downsizing fever and plunge headlong into ill-conceived downsizing projects.

To get the lowdown on downsizing, I went to a man who thinks in gigabytes. Sam Lyles is not your average computer scientist. In fact, the Irving, Texas-based consultant's background is more focused on theoretical physics. Many may wonder, what does a Ph.D. dissertation about "Lorentz Ensembles in the Stochastic Theory of the Space-Time Continuum" have to do with downsizing?

Continued on page 42

Maintenance made easy at Hughes

ON SITE

BY MICHAEL ALEXANDER
CW STAFF

FULLERTON, Calif. — Unlike the lonely Maytag appliance repairman in television commercials, Merwin Buckner is a popular guy whose telephone seldom stops ringing. Buckner is supervisor of PC and terminal maintenance at Hughes Aircraft Co.'s ground systems group, and he and his staff are responsible for keeping some 10,000 personal computers, terminals and peripherals in top-flight condition.

"We generally get more than 100 work orders each week," Buckner said. At that rate, logging calls for service, scheduling jobs, keeping track of parts in inventory and a myriad of other tasks would be nearly impossible

if it were not for a recently installed computerized maintenance management system, Buckner said.

"The problem was that the volume of work on PC maintenance was increasing rapidly and getting to a point where we were not able to keep accurate inventory records," Buckner said. "Also, we had trouble tracking work orders when people called with requests for repair."

To solve the parts and repair tracking problem, Buckner adapted a maintenance management system called Maximo Maintenance System, by Project Software and Development, Inc., that is most frequently used by plant engineers and facilities managers to track machinery and building maintenance.

As calls for service come into the "trouble desk," the informa-

tion is entered into one of five IBM Personal System/2 Model 50s on a local-area network (with a PS/2 Model 80 as a file server). Each technician receives a work order that is used to track the parts used in the job, time on call and the department to whom the charges should be applied. It was this sort of functionality and the fact that he could tailor it to his department's unique requirements that made the package so appealing in the first place, Buckner said.

"I liked the idea that a work order is automatically generated before a technician does a repair, and when he comes back and notes what parts are used, the system automatically tracks parts usage and deducts them out of stock," Buckner said. "We keep a running record of what we have in inventory, and we

have it set up with a minimum-maximum level that automatically flags us to reorder certain parts before we run out."

The package is also used to keep a complete history on each piece of gear, enabling Buckner to pinpoint when it is most cost-effective to replace equipment rather than to continue repairing it.

"One of the main advantages of the computerized system is that it has helped me get control of inventory levels and keep costs in line," Buckner said.

The Maximo maintenance program, which runs on IBM PCs and compatibles running MS-DOS 3.1 or higher, is also used to track how each of the facility's PCs is equipped. Before a technician goes out on a call, he can take a look at the system configuration to spot potential trouble spots and be better prepared to handle recurring maintenance problems.

Visix seeks to make Unix look
easy on desktop managerBY MICHAEL ALEXANDER
CW STAFF

ARLINGTON, Va. — Visix Software, Inc. announced it will ship a desktop manager this quarter that will make Unix more palatable to end users and simultaneously help push workstations into the commercial marketplace.

The company plans to hawk a desktop manager called Looking Glass that it said brings the icons and point-and-click simplicity of an Apple Computer, Inc. Macintosh to workstations running Unix under X Window System. It is the only desktop manager available that can accomplish every Unix task supported by the operating system in complete

conformance with the Open Software Foundation's Motif user interface standards, according to George Hoyem, vice-president of marketing at Visix.

OSF/Motif and Open Look (developed by Sun Microsystems, Inc. and AT&T) graphical interface standards are not the Unix equivalents of the Macintosh Finder, despite what some industry observers believe, Hoyem said. There is no software implementation of a desktop manager in OSF/Motif, and the latest Open Look specification lacks even a rudimentary file manager, he added.

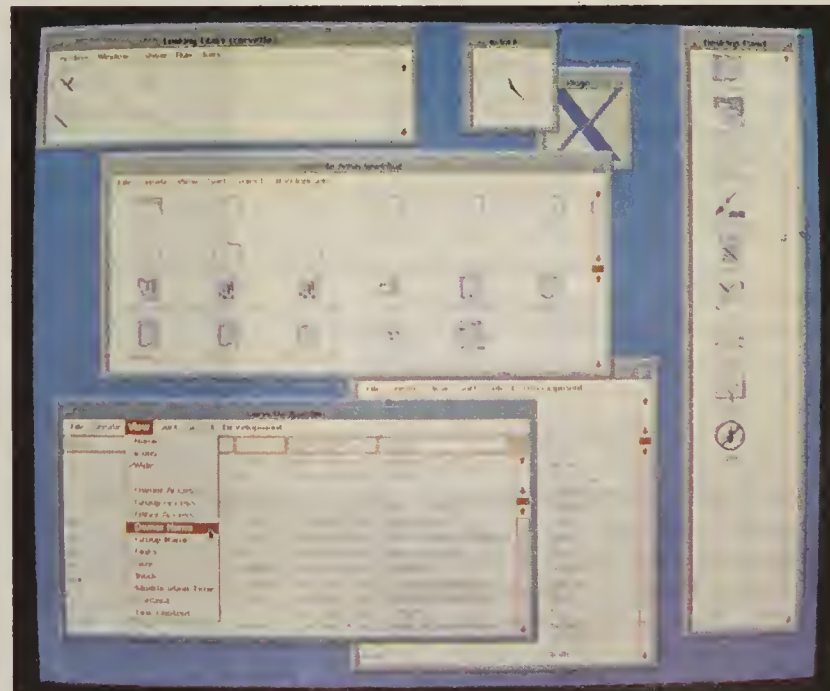
"All they give you is a pretty screen and a way to navigate in Unix," said Maggie Konner, an analyst at International Data

Corp. in Framingham, Mass.

Unix workstations will need a friendly graphical user interface if they are ever to move from their traditional engineering and

scientific strongholds into the commercial market, but it is debatable whether Looking Glass can fuel that shift, Konner said.

Continued on page 41



Looking Glass user interface is icon-based and mouse-driven

2 Are programming tools for database servers ready now?

YES. SQLBase was first shipped in 1986, two and a half years ahead of the competition. As a result, SQLBase has the richest selection of programming tools available today. You can write applications in C or Assembly Language, of course, but also in COBOL, or in dBase-compatible Clipper or dbXL/Quicksilver. You can even create a graphical user-interface with SQLWindows, our own full-featured 4GL. To learn the rest of the story, ask for your free copy of *Choosing a SQL Database Server*. Call the database server experts toll-free, 800-876-3267.



We invented the
SQL database server.

Keefe

CONTINUED FROM PAGE 37

The impetus for Microsoft's comment was the recent effort by Sun Microsystems, Novell and Netwise to anoint their remote procedure call (RPC) as the standard.

Maybe what the Microsoft executive really meant to say was that if a bunch of vendors get together without Microsoft's blessing, then whatever they come up with, no matter how much sense it may make, isn't worth a hill of beans — at least in Redmond, Wash.

R P C-ing you in a few months. All of which begs the question of which RPC Microsoft is backing. The micro software behemoth's two key LAN Manager co-developers, 3Com and Hewlett-Packard, are in different corners.

3Com surprised the industry by joining hands with Novell on the Sun RPC. HP — to no one's surprise — is backing an RPC based on technology from recent acquisition Apollo Computer alongside DEC.

There is yet a third RPC, this one from Locus Computing and Transarc, a startup with an IBM equity stake. Industry sources claim that Microsoft is already in bed with the Apollo/DEC RPC. Of course, Microsoft could come up with something on its own.

"We have a very specific RPC strategy, and we'll make that known within the next couple of months," said Mike Murray, Microsoft's marketing director for its networking business. RPC submissions are due to the Open Software Foundation in October, he hinted.

Squashed like a bug. Excelan's recent merger with Novell has done little to strengthen its once-budding relationship with Microsoft.

First Microsoft yanked its LAN Manager license in a huff — exercising options spelled out in the contract between the two — and now we hear that Microsoft has tossed out Excelan's Transmission Control Protocol/Internet Protocol (TCP/IP). That code was developed under contract to the gang in Redmond for use with LAN Manager.

In the first instance, Murray said the issue is very overblown: "It's noncontroversial and it's not a big deal to us."

However, that's not how a source close to the action recalls it. "Microsoft went crazy after Novell bought Excelan," the source said. "They called them up and [asked them] to return LAN Manager diskettes and source code immediately. Excelan said, 'Good, give us back our money,' which calmed Microsoft right down."

Murray refused to comment on those reports and allegations that Excelan's initial TCP/IP source code was bulky and slow. He would only say that Microsoft has looked at a variety of transports, including TCP/IP and transport level four (TP4).

"The fact that we don't have one today is indicative of the performance issues related to the code we have seen [so far]," Murray said.

However, Microsoft does have TCP/IP for OS/2 LAN Manager, which comes from HP and 3Com. In the case of LM/X, HP is supplying the TCP/IP.

Frost's on the pumpkin, announce-

ments on the way. We hear Microsoft is readying a distribution agreement with Nantucket, the makers of Clipper, for SQL Server. Who's next? Lotus?

In addition, look for Sybase to take the wraps off some SQL connectivity tools based on the database supplier's open architecture at an Oct. 4 announcement in New York.

Let's get those digs in. Microsoft just couldn't resist taking a shot at SQL nemesis Oracle at the recent Networkworld tradeshow. Together with co-developer Ashton-Tate, Microsoft distributed the following saucy button: "An oracle speaks only of the future. Talk to SQL Server today."

Oracle, meanwhile, has picked up two

SQL Server salespeople from Ashton-Tate.

Don't touch that dial. Lotus President Jim Manzi joined other company executives recently by hinting that since the core piece of many pending Lotus projects has shipped — 1-2-3 Release 3.0 — users should be on the lookout for upcoming Lotus announcements that will "soon" affect information systems managers. Now, that could involve a number of projects in the works, including 1-2-3/M for IBM's 370, 1-2-3/U for Unix, 1-2-3/G for OS/2 and a version of 1-2-3 for DEC's VAX.

Keefe is a *Computerworld* senior editor, PCs and workstations.

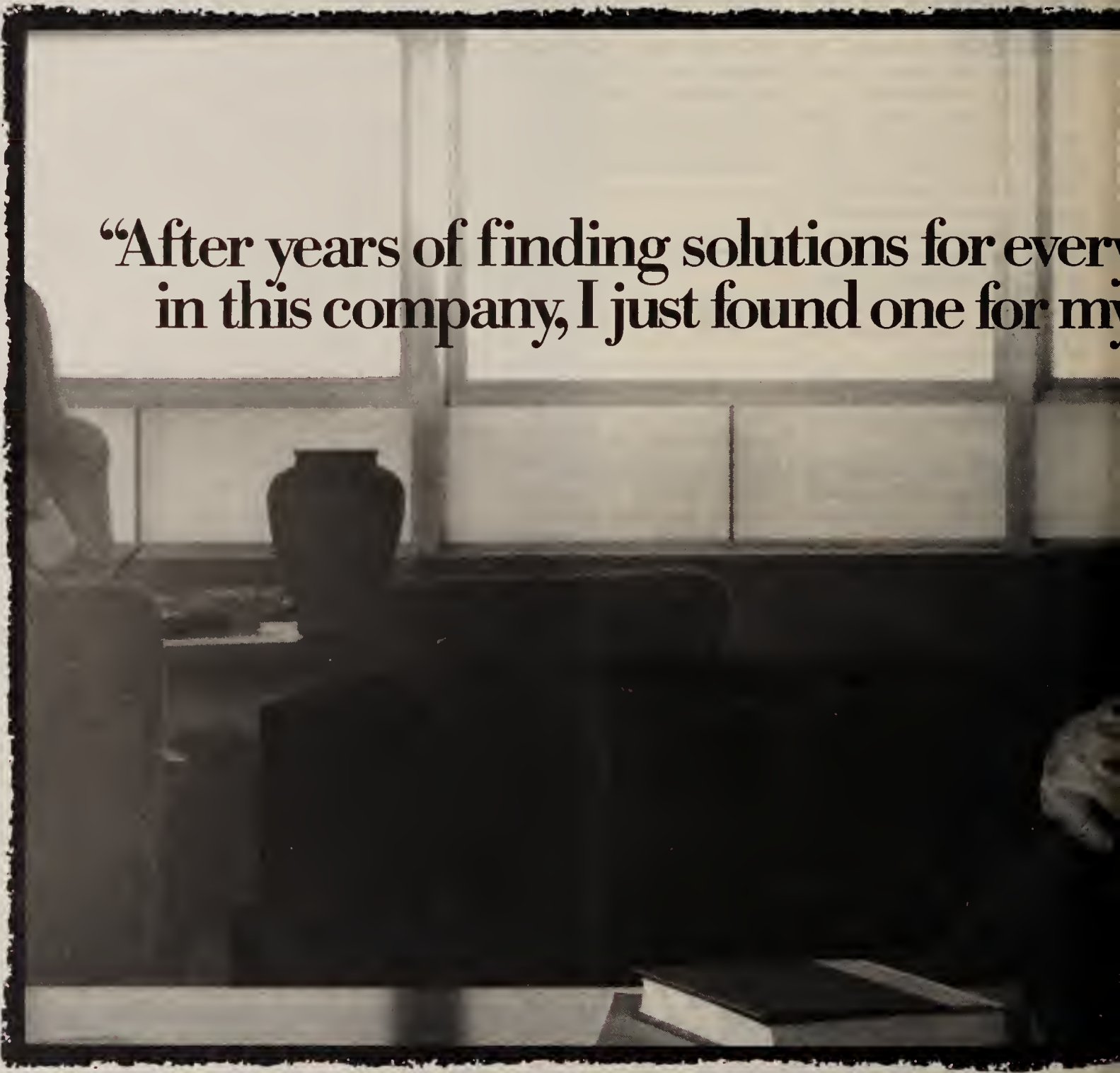
Ashton-Tate

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man pointed out that while Microsoft aggressively recruited third parties to port their software to work with SQL Server, "none of these companies have delivered."

Noting that many corporations are standardizing on Microsoft Windows, ADS Vice-President Stan Levine claimed, "SQL Server desperately needs a Windows database front end now." He predicted that people will stay with Windows until enough applications are ported to OS/2 Presentation Manager. Levine foresees an 18- to 24-month window.

"I look at [SQL Windows] as an oppor-



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tunity for MIS to begin developing [answers] right now instead of waiting for some future product yet to be done," Levine said. "Microsoft's problem is that it wants to do everything perfect, but people really need the tools to get the job done today."

This capability is important, say observers, who claim that Microsoft sees SQL Server as the key to OS/2 LAN Manager's success. There is a substantial group of corporate users who say they have moved to OS/2 strictly for SQL Server. "Windows will save LAN Manager for Microsoft," Levine claimed.

The so-called "savior" is a graphically oriented application development system for building database applications under Microsoft Windows without C program-

ming. It serves as a front end to Gupta's SQLBase Server on local-area networks and IBM's mainframe-based DB2 SQL database. Gupta provides DB2 connectivity through a gateway. It is currently building similar gateways to databases from Oracle Corp. and IBM's OS/2 Extended Edition, with the eventual goal of making SQL Windows a front end for all major SQL databases, Zimmerman said.

Available in the fourth quarter, ADS SQL Server Library is a set of functions that can be embedded in SQL Windows applications in order to provide direct access to the Ashton-Tate/Microsoft/Sybase SQL Server. The Library and SQL Server Dynalink Library will not add appreciably to the memory requirements for SQL Windows, Zimmerman added.

Sun offers third parties Sbus

BY JAMES DALY
CW STAFF

MOUNTAIN VIEW, Calif. — Sun Microsystems, Inc. recently announced the immediate no-cost availability of its Sbus bus architecture specification, giving third-party developers full access to all of the critical components necessary to build Scalable Processor Architecture (Sparc)-compatible computers.

Additionally, the workstation manufacturer said it will license its own implementation of the Sbus to systems manufacturers that wish to mirror Sun's design but would like to sidestep the high cost of

research and development.

The specification is a technical road map that board and system designers use to develop postcard-sized add-in cards and computers based on the Sbus architecture. The 32-bit Sbus allows the addition of postcard-sized add-in cards to computers at a very low cost. By employing a direct interface between a card's application-specific chips and the motherboard, the Sbus delivers higher performance at a low price.

Sun is also hoping to facilitate Sbus card development by selling the Sbus Developer's Kit. The \$300 package will enable developers to get their product to market more quickly by providing the Sbus specification as well as additional design information. Sbus was introduced in April as part of the announcement of the Sparcstation1, Sun's reduced instruction set computing-based desktop computer.

Visix

CONTINUED FROM PAGE 39

"A product like this is necessary, but by itself that point is not significant," she said. "Visix has to sell it to the [hardware] vendors. To succeed, [Looking Glass] will have to be on the basis that this is a better product than what the vendors can produce on their own. They have a formidable job ahead of them."

Last week, Visix signed strategic marketing agreements with Mips Computer Systems, Inc. and Network Computing Devices, Inc. under which those companies will bundle Looking Glass with their Unix systems.

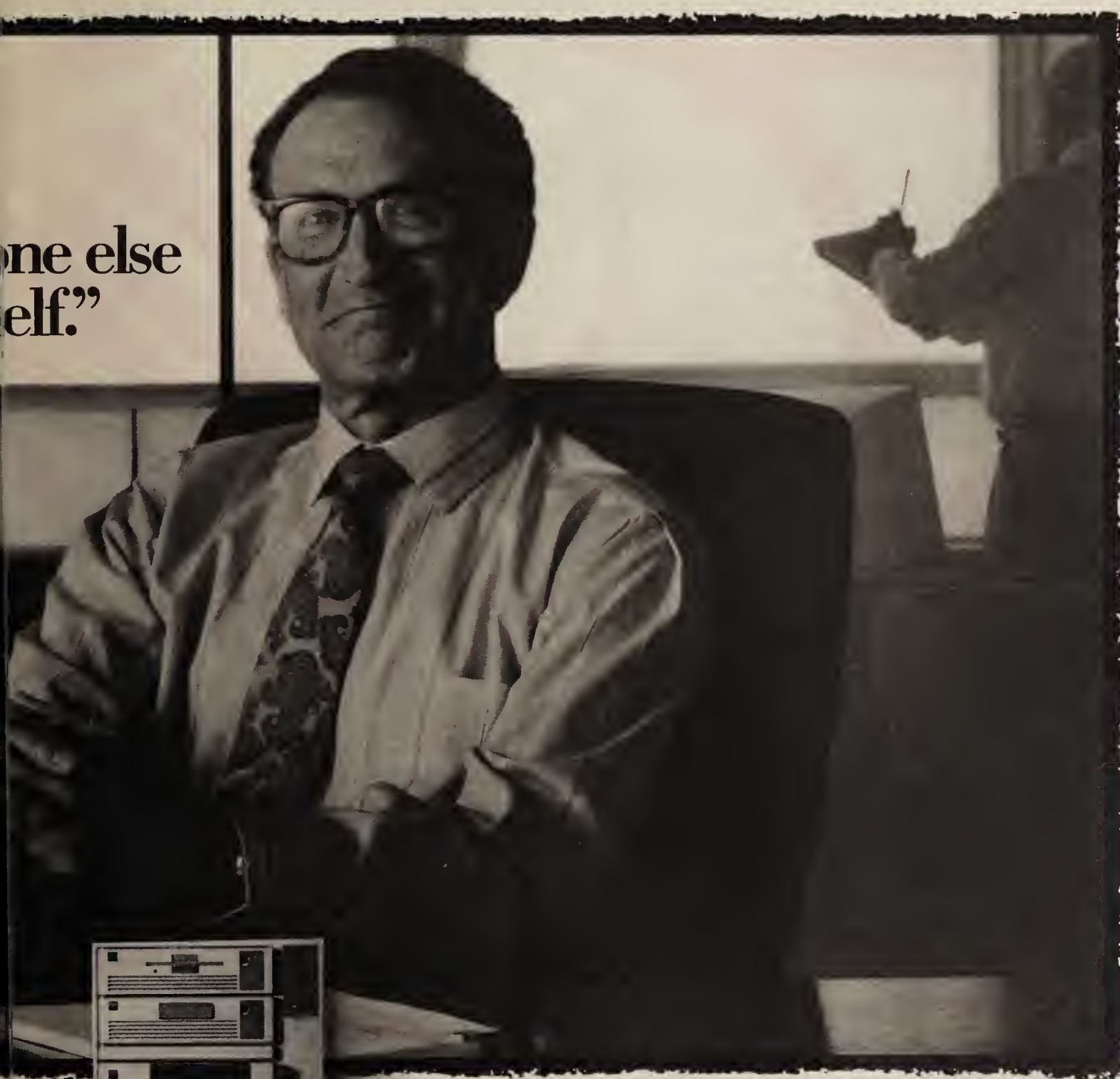
Visix has already inked similar pacts with Pyramid Technology Corp. and Intergraph Corp., which claims to be the fourth largest seller of Unix workstations.

Beta users give thumbs up

Beta testers of Looking Glass generally agreed that the product would be a boon to some Unix users.

"I think that it would be excellent for people who do not know Unix — it's a great crutch because it makes Unix particularly transparent — but for the Unix wizards it would only slow them down," said Dawn Bunting, research operations manager at Du Pont Co.'s Experimental Research Station in Wilmington, Del.

"Starting up applications under the manager is slow, but as far as moving and copying files and using the directory structure, it is surprisingly snappy," said Mike Beasley, a technical computing systems software developer at General Electronic Co. in Cincinnati. "It's reasonably flexible and Motif-compliant, by and large."



from a central spot, even checking users' screens (and solving their problems) by remote control.

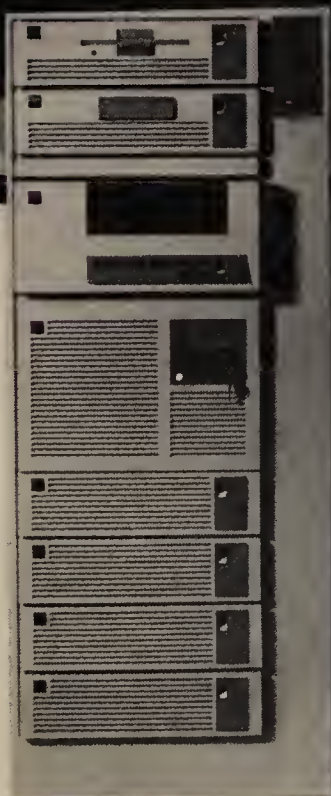
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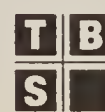


The IBM AS/400 Model B35.

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(416) 221-5140

Barney

CONTINUED FROM PAGE 39

Without boring the disinterested with the details of Stochastic Theory, it means that Lyles does not tolerate conventional notions of the limitations of micros. Instead, he ponders their absolute potential, then works to exploit them.

Lyles has proven time and time again that downsizing is possible with today's technology. In fact, Lyles has been doing mainframe-size applications on personal computers for years with equipment now considered obsolete (Vector Graphics PCs, for example). All it takes is will, an open-minded client and a well-thought-out strategy.

While many focus on new chips and big fast drives, Lyles is just as interested in data file structures, efficient storage methods and the replacement of tables with equations. With some smart thinking, he has developed PC-based systems with 14 million records and search times under one second. I can live with that!

That's not good enough for Lyles. Instead, he looks forward to nearly unlimited systems based on cost-effective PC technology. By the middle of next year, Lyles expects a system with a double-digit MIPS rating, multiple gigabyte 5¼-in. magnetic disks, read/write optical cartridges and a more robust operating environment. And he expects to pay no more than \$20,000. Now there's a system to do some serious downsizing with.

Lyles is at his most entertaining when he talks about the future. Optical computers, expected to be available by the year 2000, hold incredible promise. Just imagine a small computer device that responds instantaneously. Now imagine that same device has virtually unlimited storage. This instantaneous unlimited storage would also be indistinguishable from random-access memory. Why, we could even run OS/2 effectively!

Downsizing is clearly the way to tackle big projects that no one has yet attempted. How else can one cost-effectively store huge sets of data that remain scattered? For instance, nationwide property records are not kept in a central, accessible and effective location. As any literate American knows, the federal government has been taking over beleaguered S&Ls. What Americans largely don't know is that, because of the lack of a centralized system, the government does not clearly know what it now owns.

A mainframe is a fine system for such a database, but it is not too effective if the aim is distributing data access. Here, PCs and optical discs truly shine. It is also essential if we are to distribute access to the general population, which would help the U.S. be a true democracy.

Downsizing serves several purposes. It helps save money. It provides a platform for applications that cannot be cost-justified on mainframes. And in a bizarre twist, it could help to protect our political and economic freedom by providing citizens with access to information.

The technology and the need are both here. What's missing is simply the realization of what is possible. The bottom line in downsizing is this: If Samuel P. Lyles can do it, you can do it, too. All it takes is guts, respect for the power of PCs and some sharp computer skills. Oh, yeah — it also takes ambition.

Barney is editor in chief of *Amiga World*.

Wordperfect casts graphics in its own image

BY RICHARD PASTORE
CW STAFF

OREM, Utah — Wordperfect Corp., seeking to create its own United Nations of business tools, is hoisting a presentation graphics flag beside the banners of its spreadsheet, database management and word processing products.

Drawperfect, announced last week, will compete head-on with Lotus Development Corp.'s Freelance and Software Publishing Corp.'s Harvard Graphics, according to Rourke Mace, senior manager of personal computer marketing.

The \$495 package runs on IBM Per-

sonal Computers and compatibles and can access the standard IBM set of 256 colors. The program is not intended for use as a painting or illustrating package. Instead, users can access the 500-image library that ships with the package.

Wordcompatible

Drawperfect is distinguished from its competitors because of its compatibility with the company's Wordperfect word processing package and Planperfect spreadsheet program. The new program shares the interfaces and some of the keystrokes of its word processing cousin, making the learning curve extremely

short for Wordperfect users, Mace said.

Drawperfect users can also import spreadsheet data from Planperfect — as well as Lotus' 1-2-3 and Microsoft Corp.'s Excel — to use in constructing charts and other graphics.

The presentation package supports a variety of IBM color cards, monitor types and printers. Users can also employ a built-in function that allows them to write their own device drivers for peripherals not covered by the standard drivers.

Drawperfect requires 384K bytes of random-access memory. It is slated to ship sometime between November and January of next year.



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NEW PRODUCTS

Software applications packages

Software Technology, Inc. has introduced Case Master III, a personal computer-based case management system that can assist law firms in the handling and tracking of their cases.

The software can track client and case information and prepare documents and management and status reports, the vendor said. It integrates with Software Technology's Tabs III, a time and billing system, as well as word processing programs that work with ASCII files.

A single-user version that requires a minimum of 512K bytes of random-access memory and a 20M-byte hard drive costs \$1,500. A multiuser version requires Novell, Inc.'s Netware, IBM PC Network or Lanier PC Network and sells for \$2,500.

Software Technology
Lincoln Trade Center
Suite B
6101 South 58th St.
Lincoln, Neb. 68516
402-423-1440

SPSS, Inc. has announced Chi-square Automatic Interaction Detection, a statistical software package that is designed to

help marketers predict responses to marketing programs.

The system is said to be a stand-alone, menu-driven product for MS-DOS personal computers. According to the company, the program uses response models and classification trees rather than multiple regression to predict responses to the programs.

The price is \$395.

SPSS
444 N. Michigan Ave.
Chicago, Ill. 60611
312-329-2400

Baler Software Corp. has upgraded its spreadsheet compiler, a customizing program for spreadsheet-built applications.

According to the company, Baler 5.0

provides menu-driven tools that allow users to create stand-alone, tamper-proof versions of their Lotus Development Corp. or compatible spreadsheets. It can run on IBM Personal Computers, PC ATs, Personal System/2s and compatibles with DOS 2.0 or higher.

The cost is \$495 with academic discounts, and upgrades are available.

Baler Software
Barrington Pointe, 4th Floor
2300 N. Barrington Road
Hoffman Estates, Ill. 60195
312-490-5325

Development tools

Courseware Applications, Inc. has announced a programming tool for the IBM Personal Computer that allows users to automate the programming of graphic displays.

Drawbridge 3.2 is reported to be a graphics editor capable of generating source code to all popular graphics libraries in C or Pascal. The latest release provides support for user-loadable fonts, the vendor said. The software is priced from \$89 to \$189, depending on the library version required.

Courseware Applications
475 Devonshire Drive
Champaign, Ill. 61820
217-359-1878

Clear Software, Inc. has unveiled a product that helps developers understand C code.

According to the vendor, Clear + reads the source code of a C application and then produces the system tree chart, function flow charts, formatted source listings, function cross references and prototype files. The product has been designed for use with IBM Personal Computer XTs and ATs or compatibles with two 360K floppy disks or one hard disk and sells for \$199.95. A package that combines Clear + for C and for Ashton-Tate Corp.'s Dbase is sold for \$310.

Clear Software
637 Washington St.
Suite 105
Brookline, Mass. 02146
617-232-4720

Training

Intellisance Corp. has upgraded its family of Lotus Development Corp. 1-2-3 interactive computer-based training programs.

Training for Lotus 1-2-3 is available as a combined introductory and intermediate level package and as an advanced version. Each program covers new features of Lotus 1-2-3 releases 2.2 and 3.0. The upgrades are available free to new purchasers of the training programs. Users who send in upgrade cards for the advanced version will receive a chart comparing features of various Lotus 1-2-3 releases, the vendor said.

Intellisance
1885 Lundy Ave.
San Jose, Calif. 95131
408-432-0430

Microvideo Learning Systems has announced a training package for users of Enable Software, Inc.'s Enable.

The Enable Learning system is reportedly on the General Services Administration schedule and features four individual training modules that can be purchased

Continued on page 46

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video conferencing equipment
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This polycarbonate shell is the same super-tough stuff used in motorcycle helmets. Appropriate protection for a precious brain.

The trackball does everything a mouse does. In less space. It allows you to control the computer without complex keyboard commands. You can even switch it to the other side of the keyboard if you're left-handed. Or if you still prefer the mouse, just plug it into the back. No other portable can give you the thoughtful details you'll find in the Macintosh Portable. Simply because no other portable is a Macintosh.



The power to be your best.™

Portable is here.

Continued from page 43

separately: word processing, spreadsheet/graphics, database/graphics and telecommunications/master control. Each unit contains a video cassette, data diskette and a manual, the company said.

If purchased as a four-module VHS/Beta package, the product costs \$1,295. Each module can also be purchased separately for \$495.

Microvideo Learning Systems
Suite 600
91 5th Ave.
New York, N.Y. 10011
212-255-3108

Data storage

Microtech International, Inc. has announced the N650I, a 650M-byte internal hard disk drive for the Apple Computer, Inc. Macintosh.

The disk drive features 16ms of access time and was designed for storage-intensive applications such as multimedia and network environments that require file servers, according to the company. The drive also reportedly includes partitioning and disk management software utilities, as well as a selection of public domain software.

According to the company, as part of its Step-Up Expansion program, the user can trade-in a hard disk drive from any manufacturer, working or not, and receive a rebate of \$250 toward the purchase of the N650I. The product sells for \$3,430.

Microtech International
29 Business Park Drive
Branford, Conn. 06405
203-488-7744

Z-Lock Manufacturing Co. has introduced a disk drive lock for IBM's Personal System/2.

Lockettes can lock or unlock in less than three seconds, prevent copying of proprietary files and software and block insertion or erasure of data by unauthorized personnel, the vendor said. Optional software reportedly restricts booting of the system.

Delivered with two tubular keys, quantities of Lockettes can be keyed alike or differently.

The PS/2 Lockette sells for \$39.95. Versions for Apple Computer, Inc. Macintosh 3½-in. drives and for flip-lever-over 5¼-in. drives are priced at \$19.95.

Z-Lock Manufacturing
P.O. Box 949
1201 North Catalina Ave.
Redondo Beach, Calif. 90277
213-372-4842

Board-level devices

Preston Scientific has developed a data acquisition system aimed at the high-speed test applications of the scientific, medical and industrial fields that includes plug-in compatibility to IBM Personal Computer AT computers.

According to the company, the P/DAS-812 Data Acquisition System has 12-bit resolution and converts and transfers data to the computer's memory at 800,000 samples per second. The system comes with menu-driven software for selection of operating features, an input signal connector box for up to eight analog input signals, programmable channel address memory and built-in self-checking.

The price is \$3,600.
Preston Scientific
805 E. Cerritos Ave.
Anaheim, Calif. 92805
714-776-6400

UFO Systems, Inc. has expanded its line of laserboards for IBM Personal Computer-compatible computers.

The laser printer controllers, called the LB-II family, are reportedly image co-processor board systems for electronic printing at resolutions ranging from 300 to 600 dot/in. and printing speeds up to 40 pages per minute. According to the vendor, the LB-II family targets users demanding high speed in graphics-intensive use and supports office printers from major vendors.

The LB-II boards for both the AT and XT are available for \$1,200, without dynamic random-access memory. A daughterboard for the XT version costs \$180. Quantity discounts are available.

UFO Systems
One Tobey Village Office Park
Pittsford, N.Y. 14534
716-248-3372

Contec Microelectronics U.S.A., Inc. has introduced virtual disk memory boards that operate on IBM Personal Computers, ATs or compatibles, enabling the machines to be used for data acquisition and control in harsh environments.

According to the company, the boards are available with static random-access memory (SRAM) or erasable programmable read-only memory (EPROM) and can emulate any format or density of floppy or hard disk, thus providing faster access times than the mechanical versions.

Various configurations are said to be available. A 1.2M-byte EPROM version sells for \$665, and a 2.4M-byte SRAM model costs \$2,230.

Contec
Suite 530
2010 N. First St.
San Jose, Calif. 95131
408-436-0340

Yarc Systems Corp. has upgraded its co-processor system for the Apple Computer, Inc. Macintosh.

According to the company, Nusuper uses reduced instruction set computing, features 6M bytes of memory-ready cache and has direct access to 32M bytes of dynamic random-access memory on its Nubus. Up to four Nusupers can run on a single Macintosh host, and each can access the peripheral/graphics boards in the Nubus, the memory on the motherboard and another Nusuper, the company said.

A 3M-byte board sells for less than \$2,800 in quantity.
Yarc Systems
Suite 721
5655 Lindero Canyon
Westlake Village, Calif. 91362
818-889-4388



Mitsubishi's S340-10 thermal printer

Peripherals

Mitsubishi Electronics America, Inc. has debuted two high-resolution color thermal printers that are aimed at the desktop presentation market.

The S340-10 sublimation thermal printer and the G370-10 thermal transfer printer are said to be compatible with IBM Personal Computers and Apple Computer, Inc. Macintosh II machines. The models can accommodate as many as four different paper or transparency film sizes, the vendor said. The printers are packaged in a small footprint design, and each unit weighs 57.4 pounds.

The 300 dot/in. G370-10 utilizes sequential overprinting and color mixture techniques to produce high-resolution graphics output in seven basic colors. It reportedly can recognize raster-type data and carries a suggested list price of \$5,995.

The 150 dot/in. S340-10 was designed to produce near-photographic quality color or hard copy for graphic design, medical and scientific imaging applications, the company said. Print images may be enlarged two or three times the original size, and the device can print as many as 16.7 million colors, depending on the software and hardware controllers used. The G340-10 costs \$13,995.

Mitsubishi Electronics America
991 Knox St.
Torrance, Calif. 90502
213-515-3993

LaserMaster Corp. has announced three products based on its Font Channel Architecture.

Glass Page 1280 reportedly comprises a 19-in. high-resolution monitor and display controller that feature dual-page display and use font outlines to produce on-screen type and images that match printed output. The monitor and display controller products were designed to be used with the company's printer controller or LaserMaster 1000 typesetter. The monitor and display controller sell for \$995 each. The LaserMaster 1000 plain-paper typesetter is said to produce 1,000 by 400 dot/in. output at speeds of up to eight page/min. The product is available for use with IBM Personal Computers and compatibles, Personal System/2s and the Apple Computer, Inc. Macintosh. Prices range from \$7,495 to \$7,995.

According to LaserMaster, Micro Channel Architecture bus products have been available since last month.

LaserMaster
7156 Shady Oak Road
Eden Prairie, Minn. 55344
612-944-6069

Texas Instruments, Inc. has expanded both the high and low end of its line of impact printers.

The 8900 series Models 8930, 8920 and 8920C are reportedly for use in shared resource, forms-intensive environments. The 8930, 8920 and 8920C sell for \$2,545, \$2,345 and \$2,445, respectively.

Models 830 and 835 are said to be nine-pin workstation printers designed for low-end forms and personal printing needs. Each model can handle five-part forms at speeds up to 300 char./sec., the vendor said. Model 830 is priced at \$579; Model 835

costs \$829.

Texas Instruments
P.O. Box 202230, DSG-278
Austin, Texas 78720-2230
800-527-3500

Sampo Corporation of America has announced a combination of its monochrome display and Cornerstone Technology Co.'s video card that is compatible with IBM's Personal Computer, AT, Personal System/2 and compatibles.

The Officepro II 20-in. monitor reportedly provides 1,280 by 960 lines of resolution and includes a selectable power supply. The monitor and Cornerstone PC1280 video card combination lets users display two full-text pages side by side in landscape mode. It sells for \$1,790.

Sampo
5550 Peachtree Industrial Blvd.
Norcross, Ga. 30071
404-449-6220

OS/2 software

Everex Systems, Inc. has created a version of Microsoft Corp.'s OS/2 for its Step line of personal computers. OS/2 Version 1.1 reportedly incorporates Microsoft's Presentation Manager graphical interface with its capabilities for menus, windows, icons and a mouse or other pointing device.

It reportedly supports fixed-disk logical partitions of up to 2G bytes and costs \$340. Owners of Version 1.0 can upgrade for \$74.

Everex Systems
48431 Milmont Drive
Fremont, Calif. 94538
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DATA STREAM

Thomas Nolle

The wake-up call comes



LAN security is, frankly, a joke in most companies. A major broadcasting firm with a policy against dial-up

access to computers for fear of security problems has hundreds of PCs — with access to vital information already authenticated — resting unattended on desks and awaiting an intruder.

Studies show that most businesses have no real awareness of the state of their local-area network security, and those who do invariably think it is better than it really is.

All of this may suddenly change under provisions of the Computer Security Act of 1987. This law mandates protection by 1992 of information carried or stored by government agencies based on the level of restriction that information warrants, either classified or sensitive.

Protection of classified information in computer environments falls under the control of the National Computer Security Center (a part of the National Security Agency). In most cases, it must be protected not only from access intrusions but also

Continued on page 52

Cost predictability key for net

ON SITE

BY MITCH BETTS
CW STAFF

NASHVILLE — Not many companies know exactly how much it will cost to add another user site or application to their wide-area network several years from now. But that is the enviable position that Service Merchandise Co., a major catalog retailer, has achieved by replacing its land lines with a satellite network for more than 300 showrooms.

"We have fixed our costs in time out into the future," said Roger Lancina, operating vice-president of MIS at Service Merchandise headquarters here.

Two years ago, the catalog retailer's network was composed of multidrop lines leased from AT&T, and costs were anything but fixed. The process of predicting his phone bill "was a crapshoot every year," Lancina said. "You can't go to AT&T and say, 'What's this

phone bill going to be three years from now if I open 20 stores per year?' They don't have the foggiest notion."

In contrast, Lancina knows all of the incremental costs for his satellite network, including the cost of the central hub at headquarters, the space segment and the very small-aperture terminals (VSAT) that appear in each showroom.

The point-of-sale VSAT network, which handles such tasks as credit authorization, inventory control and pricing changes, was obtained under a turnkey contract from Hughes Network Systems, Inc., based in Gaithersburg, Md.

Carefully plotted

"With Hughes, we projected the major bumps in the cost curve out over 500 or 600 stores ... and so far there have been absolutely no surprises," Lancina said. With the AT&T service, costs were "out of control," he asserted.

Lancina declined to disclose the price of the Hughes contract and other cost details, but he did suggest that the operating cost of the VSAT network is far less than the cost of the terrestrial one.

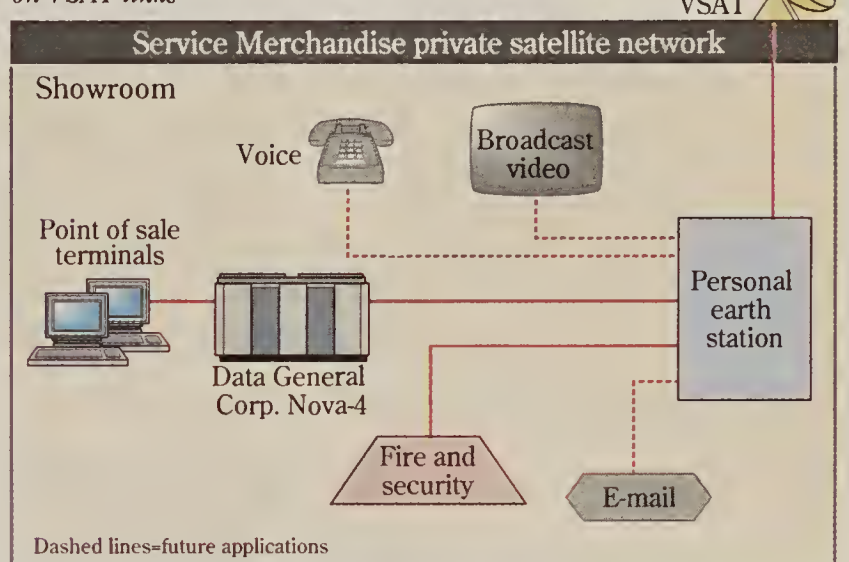
"I'm still not spending per month what I was spending with the phone company," he said, "and I'm running twice the traffic."

The retailer also prefers the reliability of the VSAT network to that of the AT&T multidrop service, in which a single point of failure can disable 50 to 60 showrooms.

Continued on page 52

Satellite shopping

Service Merchandise stores will count more and more on VSAT links



SOURCE: SERVICE MERCHANDISE

CW CHART: FRANK C. O'CONNELL

Pepsi groups join up to ink big-bucks Sprint contract

BY ELISABETH HORWITT
CW STAFF

PURCHASE, N.Y. — Several PepsiCo, Inc. divisions think they can chop off almost half of their telecommunications budgets by temporarily putting aside their traditional independence and engaging in collective bargaining.

The groups, which include corporate headquarters, Frito-Lay, Inc., Taco Bell and Pepsi's restaurant distribution system, recently signed a multimillion dollar contract with U.S. Sprint Communications Co. that is expected to reduce communications costs by approximately 45% annually for the next three

years, according to Pepsi spokeswoman Elaine Franklin.

The move was a unique one and not a part of an overall PepsiCo strategic direction toward a corporatewide network, Franklin said. "Our divisions are autonomous and can make their own choices. Several did decide to take advantage of grouping together for greater impact" when it came to bargaining for reduced costs, she added. Another expected benefit of the amalgamation is simplified network billing procedures, Franklin said.

The PepsiCo divisions awarded the contract after a competitive bid in which Sprint "came up with the most comprehensive, competitive response," she said.

Inside

- IBM grabs financial LAN, server markets. Page 50.
- Switching to central office can save money. Page 51.
- Valley start-ups gamble on need for gains in server performance. Page 53.

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- picture strings
- user interface
- online help
- utilities
- binary editing
- network support

```
EDIT1 D:\COBOL\SOURCE\QPMCALL COB
COMMAND -> F P CICS a .b
SCROLL -> HALF
000062  F10
000063  GO TO CICS-CONTROL.
000064  READ INPUT.
000065  EXEC CICS HANDLE CONDITION MAPFAIL(NOTFOUND) NOTFOUND(NOTFOUND)
000066  ERROR(ERRORS) DUPREC(DUPREC) END-EXEC.
000067  EXEC CICS RECEIVE MAP('XOPHCHB') END-EXEC
000068  IF EIBTRN10 = 'UPDT' THEN
000069  EXEC CICS READ UPDATE DATASET('FILE') INTO(FILEA)
000070  RIDFLD(NUMB IN COMMAND) END-EXEC
000071  IF FILEREC IN FILEA NOT = FILEREC IN COMMAND THEN
000072  MOVE 'FILE ALREADY UPDATED - REENTER' TO MSGID

EDIT2 0\COBOL\SOURCE\Q COB
COMMAND ->
SCROLL -> HALF
NAME EXT SIZE DATE TIME
ADDLNUV COB 7680 01/12/87 12:42p
ADDLNUV COB 2560 03/26/86 8:02a
ASKORNG COB 1536 03/29/86 10:33a
ASKTOP COB 1536 11/25/85 11:07p
CHGSEL COB 6144 01/12/87 12:48p
CHORTE COB 1024 01/07/86 8:11p
ORPACK COB 2048 10/30/85 9:47p
174 R 00011 1 1 L 62 C
```

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IBM corners bank industry, says Sierra study

BY JOANIE M. WEXLER
CW STAFF

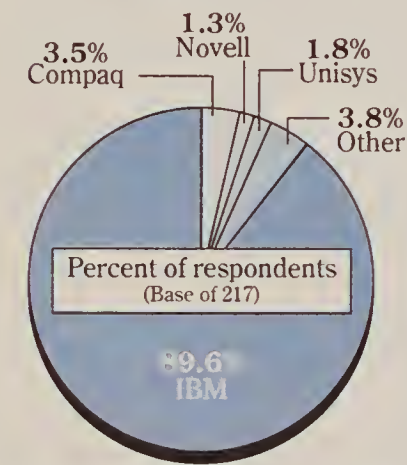
TEMPE, Ariz. — A boom in file server and local-area network installations in the financial industry is pushing lofty stacks of market-share chips to IBM's corner of the vendor table.

A recent report by The Sierra Group, Inc. anticipates 400% growth in file servers and 151% growth in LANs in the finance and banking industry during 1989. The study calculates that IBM has a near-90% share in file servers (see chart) and a near-80% share in LAN hardware. Novell, Inc. was the only other vendor in the study with a significant showing in the LAN hardware market at about 13%.

IBM reigned despite the fact that the 217 financial institutions surveyed cumulatively rated the vendor lowest in "overall satisfaction" in the LAN hardware

Banking on servers

IBM holds almost 90% of the market for file servers in banks and finance companies



SOURCE: THE SIERRA GROUP
CW CHART: FRANK C. O'CONNELL

area. The incongruity could be associated with a just-because-it's-IBM credo, said users questioned about the study.

"IBM doesn't always have the best product," said John Montaigne, network operations manager for WFS Financial Corp., a Richmond, Va., company that uses IBM systems almost exclusively. "But there are a lot of people, especially in top management, who get a certain comfort level from the big name."

"The IBM dominance speaks to the excellent job IBM has done in marketing to this particular industry," added Jim Hammons, manager of technology advisory services at The Sierra Group. "Whether or not everyone is satisfied with IBM's actual products is not as significant as the job IBM does in getting the accounts and establishing account control."

Hammons said another draw is that IBM negotiates large contracts allowing users to piggyback personal computers and midrange systems onto mainframe purchases for significant price discounts.

To explain the growth in both the LAN and file server areas, Sierra Group points to the wave of mergers and acquisitions that has swept the financial industry, resulting in a need to integrate operations among organizations.

Compuserve, Internet linked

BY ELLIS BOOKER
CW STAFF

COLUMBUS, Ohio — The million or so users of Compuserve Information Service and Internet can now send messages to one another, thanks to an electronic mail gateway.

But the gateway, which went into service late last year and is only now being publicized, might not have come about had it not been for the prodding and after-hours work of two employees in Ohio State University's computer science department. "I had friends at Compuserve, and I wanted to reach them," said Karl

Kleinpaste, a senior researcher at OSU's computer and information sciences department.

Last September, along with OSU colleague and Compuserve alumnus George Jones, Kleinpaste established what he described as a crude interface between the two services, using his own Compuserve account and electronic mailbox as the transfer point.

The two wrote a script on the department's Pyramid Technology Corp. 90X minicomputer that automated the process of dialing one or the other network with a 1,200 bit/sec. Hayes Microcomputer Products, Inc. modem, checking for

messages, downloading them and then dialing the other service to upload the "mailbag."

The link provides a gateway between Internet's Simple Mail Transfer Protocol (SMTP) and Compuserve's proprietary message interchange format (MIF).

Compuserve, after being informed about the gateway last October, provided technical assistance and a special Compuserve account to Jones and Kleinpaste, who will continue to manage the gateway.

However, the service "wasn't one of the strategically planned business products," coming as it did from the inspired hacking of two users, said David Bezaire, Compuserve product manager of E-mail. Thus, he could not predict how much traffic the link might eventually carry.

Robert was sold on Hewlett-Packard PCs while



CO switching service scraps coax, boosts port efficiency

BY JOANIE M. WEXLER
CW STAFF

A central-office switching service for IBM 3270 series terminals could save users a significant amount of money through more efficient use of cluster controller and front-end processor ports and through coaxial cable elimination in new installations, according to Northern Telecom, Inc.

Northern Telecom's Meridian Coax

Elimination Service, recently made available for multisession 3194s, is offered alongside Meridian Digital Centrex Data Services from a user's local telephone company. It links a remote IBM terminal to its headquarters cluster controller at 56K bit/sec. using twisted-pair wiring.

The service is available on more than 600 Northern Telecom DMS-100 and DMS-Supernode central office switches, and "every major BOC either has a tariff in place or will by the end of the year,"

said Lorne Hinz, Northern Telecom's director of DMS data marketing.

The service is an alternative to installing a cluster controller at each remote terminal location, which could leave some ports unused. The switching potentially maximizes the use of controller ports by consolidating them in the computer room and also reduces the number of front-end processor ports needed by decreasing the number of cluster controllers that link into it. Hinz also pointed out that by consolidating their cluster controller ports in one location, users can cut costs by centralizing their maintenance.

The service cost is a flat \$10 to \$35 per month fee, depending on the Centrex environment. In addition, a terminal interface and control unit interface, which

Northern Telecom sells to the local telephone companies for \$1,000 each, must be purchased by the user from the telephone company at its resale price.

One trial service user, Hardee's of Rocky Mount, N.C., which is using the service for 3279 terminals in a campus configuration, is still unsure exactly what the service would cost the restaurant chain because Southern Bell has not nailed down the tariff for it yet, according to Lynn Smith, director of telecommunications.

Smith views the service benefits not so much in terms of cost savings as in increased productivity, which, he said, "is hard to put a dollar figure on." Each terminal now has its own 56K bit/sec. line, rather than sharing a 56K bit/sec. line with other terminals through a modem.

"Also," Smith said, "there are certain limits on how far coax can go. These interface devices allow you to stretch that piece of coax across town."

U.S. Sprint fills gaps in telecom service offerings

BY ELISABETH HORWITT
CW STAFF

SAN DIEGO — U.S. Sprint Communications Co. filled major omissions in its telecommunications service portfolio last week, thereby becoming "a full digital and private line player" for the first time, according to Sprint Senior Vice-President of Product Management Lawrence Lake.

Sprint chose the Telecommunications Association's TCA '89 conference, held here, as the launchpad for fractional T1 and voice-grade private line services and Dataphone Digital Service (DDS).

Perhaps the most leading edge of the three introductions is Sprint's Clearline Fractional 1.5, which is said to provide significant cost savings over individual point-to-point 56K bit/sec. lines by treating a group of such lines as one connection. Sprint announced general availability for the service ahead of MCI Communications Corp., which has announced but not delivered a similar offering.

A little less

While AT&T does offer fractional T1 through its Accunet Spectrum of Digital Services, Sprint's service will offer savings of up to 10% over AT&T's, Lake said. "We're not the dominant carrier, so we have to offer our services for less," he said. The service will support 56K bit/sec. increments between 112K and 672K bit/sec., Sprint said.

Sprint's announcement of general availability for its DDS offering may have more immediate strategic significance to the carrier than fractional T1, however, given that AT&T's version of the service is in wide use, while Sprint until now only offered DDS to large customers under special arrangements. Sprint's Clearline DDS offering will support speeds of 2.4K, 4.8K, 9.6K and 56K bit/sec.

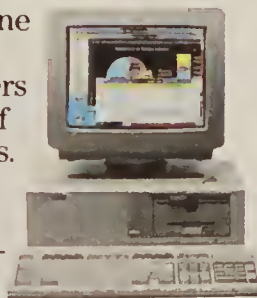
Sprint's Clearline Voiceband service support allows customers to use existing analog equipment to access Sprint's digital network services, Lake said.

he was still in college.



He was studying engineering and contends an HP calculator was the secret to his success. Since then, HP LaserJet printers have been a big help to his growing company. So when he found he could get Hewlett-Packard reliability in a network of personal computers, Robert decided to stay with a sure thing.

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Nolle

CONTINUED FROM PAGE 47

from interception through monitoring. This type of information requires Tempest-certified equipment to prevent radiation of data, which could be received and decoded. Fortunately, commercial environments are rarely involved with this level of security.

It is the "sensitive" classification that will affect the commercial user because of its broad definitions. Critical data, like a prior criminal record, is not necessary to make information sensitive. According to Richard E. Carlson, senior technical consultant at Centel's Federal Systems Division, "If you put a name and Social Security number together in a record, it's sensitive information."

The 1992 deadline has gone largely unnoticed in the private sector, but there are grave consequences to most users. Feeds of information to federal agencies are becoming common. Many banks have links to the U.S. Treasury network. Tax preparers will have opportunities to file client returns electronically in all areas of the country by the early 1990s.

Some of these information feeds are already considered within the rather broad wording of the act, and more will be drawn in. If the government is obligated to protect name/Social Security number pairs, then the employer may be equally obligated.

As mandated by the act, a computer system or network must be certifiable as secure, or "trusted," in four areas — user identification/authentication, access control and file security, transmission security and management security.

The average LAN simply cannot meet these requirements. Many older LAN programs export resources (with an optional password) when servers are booted up, and most workstations import these resources automatically when they are initialized. This easy operational strategy is inherently insecure because the workstation inherits access rights and confers them on anyone walking past.

LAN vendors are beginning to address these problems. All popular LAN software now supports central databases of users with associated access

rights data, although it is often easy to defeat even this minimum level of security. Novell's Netware 386 and Banyan's Vines both offer better inherent security than IBM's system, but neither of them is "secure" in the federal sense.

One that is secure is Digital Communications Associates' new LAN product, 10Net Secure LAN. The product offers transparent, automatic encryption and decryption using the ANSI Data Encryption Standard (DES) and the Federal Information Processing Standard (FIPS) Publication 46 standards and includes robust facilities for user profiling, file access-level control, audit trail control and user identification and access control.

A company will purchase dial-back security devices or encryption devices for

its wide-area networks and yet leave the LAN without the most primitive security measures. An audit of LAN security is a revealing and frightening measure that all companies should take. Most will find that there is a significant amount of sensitive information on the LAN, that the information is often exported without protection and that workstation security is so lax that anyone with access to the facilities has access to the LAN.

This is not only illogical but may also become noncompliant with federal information policies. "The private sector is directly affected by federal standards," Carlson said. "It's more than just securing feeds. Federal information policies set standards for acceptable information security levels overall."

DES, which is almost commonplace in the commercial computer and communications world, was developed for federal use. FIPS establishes a technical direction that influences vendors so much that that direction affects the commercial market as well. However, federal policies on protection of private data establish a mind-set and a legal precedent, which will first affect those firms that must link directly to federal agencies. That it will eventually affect all that carry similar data seems likely as well. If so, companies that pay little attention to LAN security today may pay a price after 1992.

Nolle is president of CIMI Corp., a communications consulting company that is based in Haddonfield, N.J.

Cost

CONTINUED FROM PAGE 47

rooms. "With the satellite system — other than the hub itself, which is chock-full of redundancy — anything that happens only affects the store that it happens to," Lancina said.

The MIS manager said the VSAT network is capable of a transaction every two seconds at every location. The network runs at 4.8K bit/sec. for routine transactions and 56K bit/sec. for distribution centers.

"We saw days last Christmas where we moved more than three million messages per day, an awesome amount of traffic. It was just like a pulse — click, click, click," Lancina said.

He said the initial deployment of the VSAT network took one year and was completed in September 1988.

"It's never finished, though, because we're still opening stores. We're putting in six satellite terminals this week," Lancina added.



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Upstart firms face network server walls

BY CHARLES VON SIMSON
CW STAFF

Two Silicon Valley start-ups are entering the emerging market for dedicated network servers. While the two companies are taking widely divergent technical approaches to the segmented market, each has placed a high-stakes bet that end users will pay premium prices for substantial performance gains over what general hardware vendors offer.

Auspex Systems, Inc. will unveil a patented architecture this week at Interop in San Jose, Calif. The 2-year-old company, founded by talent from Digital Equipment

Corp., IBM and Tandem Computers, Inc., claims to have loosened several CPU and I/O bottlenecks to create a high-performance Unix minicomputer optimized for networks. With prices for the NS 5000 product starting at about \$100,000 and claims of 10 times the I/O performance of workstations and minis from Sun Microsystems, Inc. and DEC, the company has positioned itself in a high-profile market niche against some of the most able competitors in the industry.

"The demand for this kind of throughput is there, and the cost per seat of workstations makes this solution cost-effective," said Dick Bush, vice-president of

marketing at Auspex. "Above all, technical people will take risks on a new company far more quickly than regular MIS."

For the moment, competition from DEC's 5000 minicomputer series, Sun workstations configured as servers and far cheaper personal computer network servers for less I/O-intensive applications will keep the firm focused on selling to technical workstation environments willing to pay for the increased capacity.

At the lower end of the network server spectrum, Sunnyvale Calif.-based Netframe Systems, Inc. announced its 386-based PC network server. Netframe's founder is Carlton Amdahl, son of Gene

Amdahl. Carlton Amdahl claims to have brought a mainframe I/O architecture to the desktop, which will enable it to handle from five to 10 times more users than a conventional PC server. But with a price tag approaching \$20,000, the cost may be prohibitive for PC local-area network customers, analysts said.

While no independent benchmarks have been run to prove performance claims, analysts see both systems as having a solid shot at corporate markets. "These are the first companies that have changed their fundamental architectures to remove network bottlenecks," said Kathleen Hurley, an analyst at Dataquest, Inc. in San Jose. "As networks get faster, that will play well to corporate users."

In a recent report, Forrester Research, Inc. expressed confidence that the two firms' architectural improvements would "run circles around less sophisticated systems." It estimated that the market for systems purchased exclusively as network servers will double to over \$11 billion in 1994. The Unix market will reach \$1.4 billion in 1990, growing to \$4.3 billion in five years.

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BIT BLAST

Clients warrant AT&T service

AT&T recently responded to increased customer demand for reliability by announcing Service Assurance Warranty, under which the carrier agrees to issue credits to business customers who experience an interruption in their Accunet T1.5 service circuits. AT&T said it will credit up to 100% of one month's price for each circuit that experiences outages.

NCR Corp.'s Workstation Division has committed to coming out with a set of Integrated Services Digital Network (ISDN) boards. One board will convert personal computers into ISDN-compatible voice/data workstations, and another will provide ISDN-based data connectivity for PC-based servers, NCR said.

The National Institute of Standards and Technology has pronounced successful its recent trial of Open Systems Interconnect (OSI) applications over an ISDN. The trial included OSI messaging and file-transfer applications.

A fiber-optic network recently completed at the **University of Michigan** will allow different campus computing facilities to exchange high volumes of data at high speeds, allowing researchers in different disciplines to collaborate on large-scale projects, the university said. The system will also provide faster direct access to the National Science Foundation's NSFnet, a high-speed backbone for linking research groups and supercomputing centers around the country.

Northern Telecom, Inc. has purchased international marketing rights for the complete data communications product line of Canadian vendor TSB International, Inc. Northern will market TSB products that collect network management information from a variety of private branch exchange systems and then send the data on to Northern's Meridian Network Control system, the vendor said.

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NEW PRODUCTS

Links

Systonetics, Inc. has announced Vislonmate, a project management product designed to provide one-touch automatic data transfer capabilities between personal computers and the Vislon Project Management System.

The package was written under Microsoft Corp.'s Windows environment and permits automatic upload and download functions with both Digital Equipment Corp. VAX computers and Prime Computer, Inc.'s host machines.

The software features graphical input for data generation and uses pop-down menus and pop-up windows for data manipulation with a mouse device, the company said.

Vislonmate is priced at approximately \$9,500, depending on the number of users.

Systonetics
1561 E. Orangethorpe Ave.
Fullerton, Calif. 92631
714-680-0910

A micro-to-mainframe data transfer package that gives personal computer users the ability to download and use selected mainframe data in their applications is now available from Cone Software Laboratories, Inc.

According to the company, Xtra PC Version 1.3 users can display mainframe data on a PC screen without rekeying the data, transferring entire files or needing recourse to the corporate information systems department.

The package costs \$295 and

works with IBM 3270 emulation boards, Digital Communications Associates, Inc. Irma boards and IBM 3270 Systems Network Architecture gateways.

Cone Software
Suite 210
Crozer Mills Enterprise Center
600 Upland Ave.
Upland, Pa. 19015
215-499-7440

Digital Communications Associates, Inc. has announced printer protocol conversion software that reportedly permits printers in an Apple Computer, Inc. Appletalk local-area network to emulate an IBM printer.

The Irmprint2 Bridge for Appletalk enables users to print graphics and text, and it provides support for a variety of Macintosh machines.

The software is scheduled for release this fall and will be bundled free of charge with DCA's Irmprint2. Irmprint2 retails for \$1,795.

DCA
1000 Alderman Drive
Alpharetta, Ga. 30201
404-442-4521

Electronic mail

Transend Corp. has announced a local-area network-based electronic mail package.

Complete E-Mail/MHS software relies on Message Handling Service, developed by Novell, Inc. and Action Technologies, for wide-area connectivity. The package provides a distributed approach to LAN-based E-mail by concentrating virtually all its functionality on

the user's personal computer. It offers an icon-based windowing user interface, the company said.

It is available at an introductory price of \$150 per five-user pack and requires an IBM Personal Computer or compatible machine with a minimum of 320K bytes of memory.

Transend
884 Portola Road
Portola Valley, Calif. 94028
415-851-3402

A customized electronic mail system for users of modem-equipped IBM Personal Computers or compatibles is available from Vocal Telecommunications.

According to the vendor, the No Postage Necessary (NPN) mailer creates text by using the user's word processing or spreadsheet software and then transmits the data in print-ready formatted text for printing or editing by the receiver.

The general NPN mailer will communicate with other NPN mailer users and sells for \$149.

The Hub-and-Spoke version contains a second Spoke disk that can communicate only with the parent hub. It sells for \$249. The software license allows the Spoke disk to be freely copied. Quantity discounts are available.
Vocal Telecommunications
77 W. Las Tunas, No. 202
Arcadia, Calif. 91006
818-447-9425

Gammalink has introduced Gammascript, software that supports Adobe Systems, Inc.'s Postscript for personal computer-to-facsimile communications. It also allows Gammafax users to transmit Postscript-supported output to any fax machine, resulting in a transmission that appears to have been printed on a 200 dot/in. Postscript printer.

Requirements include a Gammafax PC-to-fax board, an IBM PC AT or compatible with at least 1M byte of random-access memory and 4M bytes of available hard-disk space.

The standard Gammascript with 35 typefaces for Apple Computer, Inc.'s Apple Laserwriter is priced at \$440. Gammascript Starter, with 13 typefaces, costs \$145. A 22-typeface upgrade costs \$295.

Gammalink
2452 Embarcadero Way
Palo Alto, Calif. 94303
415-856-7421

Front ends/ Multiplexers

Fibronics International, Inc. has announced a 69M bit/sec. time-division fiber-optic multiplexer. The Unimux FM 892 multiplexes local-area networks with point-to-point terminal traffic over a high-speed fiber-optic backbone, the vendor said. The product is capable of supporting as many as 384 IBM or IBM-compatible terminals attached

from 11 different controllers and offers support for several networking environments, including 10M bit/sec. Ethernet and 4 or 16M bit/sec. Token-Ring LANs.

The unit is priced from \$2,850.

Fibronics International
Communications Way
Independence Park
Hyannis, Mass. 02601
508-778-0700

Acrosystems Corp. has announced a personal computer-based expansion multiplexer designed to increase the capacity of the data acquisition system to 896 I/O channels.

The Acro-917 Expansion Multiplexer Subsystem reportedly consists of a controller module and up to eight multiplexer units, providing the capability of multiplexing up to 128 differential or 256 single-ended low-level signals. Up to seven subsystems can be combined in one Acro-900 data acquisition and control system for up to 896 I/O channels.

The controller module is priced at \$575; each expansion multiplexer unit is \$600.

Acrosystems
66 Cherry Hill Drive
Beverly, Mass. 01915-9969
508-927-8880

Network management

AT&T Paradyne has introduced the Master Shared Diagnostic Unit (MSDU), designed to enable AT&T Dataphone II 2600 series data communication devices to be integrated with Paradyne's Analysis 6510 Network Management System.

The product will provide diagnostic connectivity from the Analysis 6510 to the Dataphone II 2600 series of data service units and give users a choice of network managed DSUs, the company said. Slated for release in September, the MSDU will be priced at \$500 per unit.

AT&T Paradyne
8545 126th Ave. N.
P.O. Box 2826
Largo, Fla. 34649
800-482-3333

Telenetics Corp. has announced a data network management system that turns a personal computer into a network management center, the company said.

The Telenetics Network Management System (TNM) manages modems, multiplexers, computer ports and other non-modem transducers and supports input in groups of up to 24. The product includes a rack-mounted electronic subsystem for tracking signals from dial-up or private-line modems and multiplexers and Network Windows software, which runs on any PC with a color monitor and a minimum of 512K bytes of random-access memory.

A typical 48-modem system is priced at \$6,800.

Telenetics
5109 E. La Palma Ave.
Anaheim, Calif. 92807
714-779-2766

Modems

Circuit Research Corp. has announced a data modem that also functions as a fax machine for the Apple Computer, Inc. Macintosh..

According to the company, the Flexfax functions as a 2.4K bit/sec. data modem and also receives and sends fax documents at 9.6K bit/sec. from within applications.

The modem is said to work in the background and can transfer Apple Computer, Inc. Macintosh data files with other Flexfax or Applefax locations.

The price is \$895.

Circuit Research
Suite 3
4 Townsend West
Nashua, N.H. 03063
603-880-4000

Cross Information Co. has upgraded its modem for local-area networks.

Version 2.25 of LAN Modem reportedly provides Digital Equipment Corp. VT100 and VT52 and ANSI-standard terminal emulation, as well as an interface that allows other communications software to work with the modem. There is also a Novell, Inc. Netware/IPX version as well as an IBM Netbios version, the company said. The modem is said to work in the background and provide up to 20 modem accesses for LAN users. Prices start at \$395, depending on configuration.

Cross Information
Suite 311
1881 9th St.
Boulder, Colo. 80302-5151
303-444-7799

Racal-Milgo has announced two network-managed 9.6K bit/sec. dial-up modems for the V.32 market.

The central-site Racal-Milgo Dial (RMD) 3220 and the stand-alone RMD 3221 can reportedly be managed by the company's Communications Management Series 910 Dial Management System. The RMD 3221 is said to comply with the CCITT V.32 standard of full-duplex transmission, asynchronous or synchronous, dial or leased circuit use, at 9.6K bit/sec., with an automatic fallback to 4.8K bit/sec. if the line conditions become impaired. Featuring Microcom Networking Protocol (MNP) Level 5 data compression, the cost is \$1,195.

The central-site RMD 3220 board fits into Racal-Milgo's 1690 chassis and is priced at \$1,695.

Racal-Milgo
1601 N. Harrison Pkwy.
Sunrise, Fla. 33323-2899
305-475-1601

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EXECUTIVE TRACK



David L. Gaugler has been named assistant director of the U.S. Internal Revenue Service computing center in Martinsburg, W. Va., the IRS' federal income tax record-keeping center.

Gaugler, a 22-year IRS veteran, was most recently executive assistant to the head of data processing at the IRS Southwest Region office in Dallas. He completed the IRS executive selection and development program earlier this year.

Before joining the Dallas office, Gaugler spent four years as chief and two years as assistant chief of the computer services and accounting division at the Philadelphia service center.

Gaugler holds a bachelor's degree in mathematics from Muhlenberg College and a master's degree in industrial engineering and computer science from Stanford University.

David S. Miquelon has been named program manager of the U.S. Defense Communications Agency's **Worldwide Military Command and Control Systems ADP Modernization Program (WAM)**. The program is a five-year, \$263 million plan to upgrade and integrate the agency's hardware and software.

Miquelon is a former associate deputy director for financial management at the agency. He holds bachelor's and master's degrees from Iowa State University and has been a postgraduate fellow at MIT.

Who's on the go?

Changing jobs? Promoting an assistant? Your peers want to know who is coming and going, and *Computerworld* wants to help by mentioning any IS job changes in Executive Track. When you have news about staff changes, be sure to drop a note and photo or have your public relations department write to Clinton Wilder, Senior Editor, Management, *Computerworld*, Box 9171, 375 Chittuate Road, Framingham, Mass. 01701-9171.

Wrapping IS in the cloak of history

Williamsburg's Bell keeps modern systems humming, without intruding on the past

BY ALAN J. RYAN
CW STAFF

The superhumid summers of Virginia can be brutal on visitors to Colonial Williamsburg's streets. But wander into any of the 500 restored or reconstructed buildings in the 173-acre historic district and the air is surprisingly refreshing: The air conditioners have been installed so discreetly that visitors would be hard-pressed to find the source of the chilled air.

Such is life at Colonial Williamsburg, once the capital of Virginia and now restored to its 18th-century appearance. However, it also relies on 20th century technology to keep its businesses running smoothly. The 1,000 miles of fiber-optic lines under the streets and the point-of-sale terminals in shops are examples of the coexistence between the past and present.

In charge of the side of Colonial Williamsburg that visitors rarely think about is Jim Bell, 41, director of information systems.

Bell is a history buff, and, as such, he could not have found a much more interesting environment in which to work. He is also into technology and claims one of his shortcomings is "trying to understand that people do not go to bed at night thinking about computers or how to make things work."

Bell spends a great deal of time thinking about information and the systems needed to manage it — but not all of his time. When he joined The Colonial Williamsburg Foundation 10 years ago as a systems analyst, he had no college degree. Today, he holds the top systems post at Colonial Williamsburg and has earned his associate's,

PROFILE: Jim Bell



KATHARINE LAMBERT

Position: Director of information systems, The Colonial Williamsburg Foundation

Mission: To explore computer use in enhancing the success of Colonial Williamsburg

bachelor's and master's degrees in information management from George Washington University. He also coaches football, baseball, softball and basketball teams while helping to raise two children who play the sports.

In Williamsburg, Bell works one block and centuries away from the hustle and bustle of 18th century America. His office is located in a nondescript

1960s-style brick building that used to house seasonal workers.

It is there that he formulates systems plans that will bring more automation to Colonial Williamsburg while trying not to intrude upon its ambience. The Colonial Williamsburg Foundation is a not-for-profit foundation, but does have a for-profit subsidiary

Continued on page 62

Dreams distilled into bottom-line digits

BY CLINTON WILDER
CW STAFF

Selling senior management on the intangible benefits of information technology benefits may be nice to dream about, but prominent IS executives say there is no substitute for hard financial numbers in today's business world.

"I maintain that if you can't quantify it, then you can't improve it," said John Duffy, director of telecommunications and computing services at chemicals maker ICI Americas, Inc., speaking at the recent *Business Week* Symposium for Information Executives in New York.

Even seemingly intangible concepts such as customer service can be measured in such numbers as customer

complaints and product returns, Duffy said. "There are a lot more things that are tangible than you might think," he said.

Understanding the senior management culture of your organization, which usually involves preoccupation with the bottom line, is critical.

"You have to focus on where you live," said Darwin John, corporate vice-president of IS at Scott Paper Co.'s global parent, Scott Worldwide. "Our problem in the past has been focusing on how we're different [from other corporate functions]. We have to measure return on investment in IS the same way we do in other areas."

James Heidenreich, vice-president of information systems technology at Ameritech, echoed a similar theme.

Justifying a particular IS project "is like justifying entering a new line of business," he said. "You have to think of it in the way that [senior management] would."

With projects involving new technologies, starting small is a big help. "The best way to introduce it is by testing it on a small scale," said Thomas Pettibone, senior vice-president of IS at New York Life Insurance Co., referring to imaging technology.

Lining up support or sponsorship by line managers for particular projects is also a critical success factor. "The more bought in to a project that senior management is, the easier that project is to sell," said H. Thaine Lyman, head of IS consulting in Touche Ross & Co.'s Chicago office.



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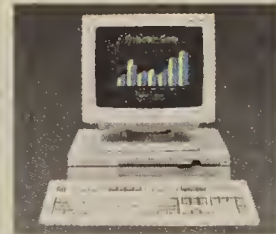
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TAKING CHARGE

Les Gilliam

The business functions of IS



How often do information systems managers pause to reflect on their organization, its functions and focus?

Many IS groups are organized the same way today as they were several years ago. A few titles may have changed, but for the most part it is business as usual, with perhaps more emphasis on production. Could it be that the IS group is a microcosm of a well-organized and fully functioning corporation? What are the principal activities of most firms, and in what form do these activities appear in the IS list of responsibilities?

Listed below are 10 of the most common corporate activities. IS managers would do well to review the list and be sure each activity has the appropriate organization and singular focus within their own group.

- **Research.** Not all IS organizations are large enough to afford a separate research group. However, every IS group should have specific responsibilities assigned for the planning and development of future products and services, both those acquired from the outside and those developed internally, to be employed in serving the IS customers.

- **Marketing.** Most IS organizations may not need sales representatives to find customers, but they certainly need to give a high priority to customer relations, including planning, support and training for each individual customer.

Providing a direct channel for feedback from the users to the IS director may be the best marketing step that an IS organization can take. And in many cases, the IS group could use some promotion to enhance its image.

- **Engineering.** Stories abound about users who tell the IS people not to waste time with analysis and design but to start programming and produce something instead. Even IS has been guilty of engineering while manufacturing — that is, designing the system as it is being programmed. Hopefully, times are changing as software engineering, including many computer-aided software engineering concepts and products, becomes more accepted. Progress is being made in the recognition of analysis and design (engineering) as separate functions from programming (manufacturing).

- **Manufacturing.** In a typical manufacturing environment, management's principal concerns are quality and efficiency. To achieve these requires an investment in training and tools, plus the type of environment that will allow the employees to produce quality products in an efficient manner.

- **Transportation.** This could also be called shipping and delivery. Just as some software companies give great attention to attractive packaging of products to promote the company's image, so too should IS take great care when delivering

a new system or service to the user, to make the proper investment and preparation to achieve success and gain promotional value from the occasion.

- **Customer support.** Perhaps in no other area has IS suffered as bad a reputation as in customer support. IS must adopt the philosophy that its users are customers who can take their business somewhere else at any time. And in this day of powerful desktop computers, packaged software and the resurgence of outsourcing, they may do just that if they cannot depend on IS to be there to help when needed.

- **Accounting.** In most companies, the IS department does not have to keep its own books in regard to general ledger, accounts payable and so on. However, IS

is selling services, and this requires the keeping of proper records for billing the customer. The accounting and charging policies for computer time and personnel services should be understood by the user and be produced with the same accuracy as the corporate books.

- **Purchasing.** The acquisition of computer resources is an expensive process. But many companies do not give adequate attention to getting the best deal from vendors. Devoting time and attention to competitive bidding, quantity discounts, contracting terms and product warranties will pay handsome dividends.

- **Personnel.** Another area that is often slighted is personnel matters. Some have no formal employee performance appraisal system, and few have a good em-

ployee counseling system. A common complaint from IS employees is the lack of a technical promotional ladder, often called "the blue ladder." Most turnover and morale problems are caused by lack of attention to this category, including salaries that do not measure up to area or industry averages.

- **Information systems.** In olden days, there was a saying about the cobbler's children having the worst shoes in the neighborhood. How many IS groups do not use their own specialty to gather, analyze and report internal data to improve the IS function's effectiveness?

Gilliam is president of Gilliam Associates, a computer management consulting firm based in Ponca City, Okla.

Two mainframes. They work together, but one needs 50% more people to run. Which do you buy?



*Overall average for systems and sites surveyed, 1988 independent survey of over 600 user sites.
**1988 Datapro Research; Mainframe Users Survey.
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BOOK REVIEW

GM meets Perot, GM gets Perot, GM loses Perot

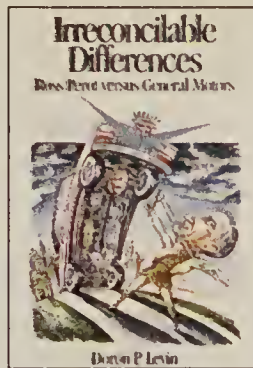
IRRECONCILABLE DIFFERENCES

By Doron P. Levin
Little, Brown, \$18.95

A marriage made in hell, a divorce made at the bank; a tale of Dallas and Detroit, of greed, ambition and obsession — this is a *business* story?

But of course — what else would it be?

If that statement is too cynical for you, don't even think about reading *Irreconcilable Differences*. Veteran business journalist Doron Levin lets you sneak a peek behind the scenes of the corporate courtship, marriage and subsequent acrimonious divorce of two of the least likely bedfellows ever to come upon the U.S. business scene. Electronic Data Systems, Inc. (EDS) founder and quintessential maverick H. Ross Perot and General Motors Corp. Chairman and prototypic company man Roger Smith are the protagonists; you might wonder whether



Levin called his work *Irreconcilable Differences* because *Bonfire of the Vanities* was already taken.

Back in 1984, bureaucratic behemoth GM bought entrepreneurial archetype EDS for \$2.55 billion. The deal had been carefully crafted, right down to the creation of a special class of stock to allow EDS maximum freedom and incentive to flourish under the aegis of what promised to be a rich and permissive parent. Moreover, the arrangement appeared to be the answer to each of its parties' prayers. For GM, long on money — \$10 billion in "our little green box," Smith said — and short on managerial

dexterity and inventiveness, the absorption of EDS and its fearless leader held the prospect of revitalization. For EDS, the merger meant gaining as its captive data processing customer the one account that even Perot had thought too big to go after. For the investment bankers, it meant a mouthwatering fee.

What went wrong? Just about everything — and just about immediately. Rank-and-file GM, it turned out, had not been let in on their chairman's plan to make EDS-aided computer technology the key to building the very model of a modern major General Motors. EDS staffers arrived in Detroit to find themselves shut out of their client/parent's corporate culture and, in fact, out of its computer rooms. Perot complained to Smith, only to be put off with assurances that things would work out by and by.

Once convinced that dealing with the Big Gun would draw only blanks, Perot took his second best shot: He went to the press with a devastating portrait of a company strangling on its own red tape, led by managers more focused on corporate perks than on automotive acuity and headed by a chairman too weak to change the system or too fat and happy to want to. From this point on, the devolution of the Perot/Smith deal was sure and swift. GM spent another \$652 million to buy Perot out of the company.

EDS STAFFERS arrived in Detroit to find themselves shut out of their client/parent's corporate culture and out of its computer rooms.

Levin was covering Perot and General Motors for *The Wall Street Journal* when the canny Texan strategist decided to storm the citadel in print. What he learned as he investigated first the news stories and then the events behind them could fill a book. It did. This is it. And therein lies both the book's greatest strength and its most frustrating aspect: *Irreconcilable Differences* is an insider's book, but it is also a one-sider's book.

Could GM — could any company — be the sinkhole of sloth, of counterproductivity, that skulks out of Levin's pages? Perot is a hero in almost anyone's book — in Levin's, however, he seems to be bucking for sainthood. The pro-Perot bias is not necessarily Levin's fault. Leveraging his Pulitzer Prize-nominated news coverage of the struggle so compellingly documented in this book, Levin clearly had a vast amount of cooperation from Perot and EDS. On the other hand, as one of the book's sources told *Computerworld*, "he had zilch access to Roger Smith." Reporters go with what they get — especially if it makes a hell of a story.

Nevertheless, the mounting sensation that there are untold "other sides" here — possibly extenuating circumstances kept hidden from view — ultimately leeches away some of the book's overall force. Given such a tantalizing peek behind the curtains, how frustrating not to be sure how much of what we see there can actually be believed.

NELL MARGOLIS

Margolis is *Computerworld's* senior editor, industry.

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Bell

CONTINUED FROM PAGE 57

that runs the five hotels, 11 restaurants and more than 20 shops on the premises. Bell is responsible for the systems for them all. Bell faces some unique challenges. As he notes, "What other company's product is its history?"

Thus, "You can't build a robot that is going to walk visitors around and tell them about what is going on," he says. Nor would The Colonial Williamsburg Foundation benefit from assembly-line techniques to manufacture the handcrafted products it sells to the public.

However, there are segments of the business where automation makes good sense, Bell says, and it is his job to explore those possibilities.

Is he successful? In an organization that during any given budget period might be forced to cut back on IS spending in order to rebuild the collapsing foundation of a historic property or put in a new boiler at a hotel, the answer is still yes.

"There are trade-offs," he says, "but with motivated, well-informed people, regardless of how much money you put into the systems, you'll make progress."

"Jim is both creative and dogged," says Stephen Elliott, vice-president and chief administration officer of The Colonial Williamsburg Foundation. "He comes up with some very good ideas, and if I haven't seen the light the first time around, he will keep selling them."

Colonial Williamsburg will be upgrad-

ing from its two IBM System/38s to the Application System/400 next year if Bell has his way. The systems would support many plans that Bell says up until now would have been too expensive to do on the System/38s.

At times, Bell says, some of the best ideas that go through his office start elsewhere. For example, when a director of custodial operations wanted a system for work order control, the amateur personal computer aficionado designed a system on his home PC. When Bell's organization found out about the system, it was decided that it had such widespread usability that they took the model and rewrote it for their System/38s.

Here for the fun of it

To help keep up on what is happening in the IS field, Bell receives close to 50 magazines regularly and looks at each one, clipping articles that might prove useful. "The biggest problem I have is understanding that all of my employees do not do that," he says. "Some of them are here because they like the work, but it is still work. Some people are here because they like the challenge. And some are here just because it is just a fun thing to do." Bell falls into the latter category.

It may be a lucky thing for Bell that he enjoys his job. Bell has his hands in many areas, and his thoughts in most others. In addition to the typical financial applications, segments of the business besides the Colonial city include a mail-order catalog business, a donor-tracking office, a printing shop where restaurant menus

and brochures are printed, a publishing business, libraries and warehouses. Bell says because the business is so unique, it can be difficult to find perfect systems.

"I don't think that buying packages is doing things most effectively or efficiently," Bell says. "That's no big surprise — anyone who doesn't basically have that same conception hasn't been in the field for long." Therefore, his staff is looking into the practicality of writing many of its

own applications.

That's important right now, Bell says, because his workers might appreciate the challenge. They have been in the maintenance mode for several years — a time that has seen the traditional 1% turnover rate rise to 8% or 9% on an IS staff of 37 people, he adds: "When you get someone into an organization like this and get him excited about all the possibilities, you don't want to lose him."

Colonial ball of wax

Jim Bell, Colonial Williamsburg's director of information systems, beholds the past daily, but his mind is resting comfortably in the present and future.

He envisions opportunities that will help things run more smoothly:

- Optical-disc applications. One would help track the many archaeological objects excavated on the premises. "There is currently a PC-based system that allows the archaeologists to do some mapping of where objects have been found," but a cataloging system is a necessity, Bell says. For archives and records — the essence of Colonial Williamsburg — optical-disc storage would be a boon.

- A new library system. The automated process being studied would allow library card holders to check out bar-coded books.

- Computer-aided software engineering tools. These will be used to develop a collections management system and a donor development system. "We have the premier folk-art collection in the world, and we also have several hundred thousand other objects, from books to furnishings to chairs, that are part of our collections, but we don't have an automated system to tell us where everything is and what it is worth," Bell says. The donor program will likely include donors' special needs and preferences so that when they visit

it Williamsburg they can be treated in the manner they prefer.

- An historic interpreter scheduling system. This system, now in place, will likely get a face-lift. It was developed with an outside firm to handle scheduling for Colonial Williamsburg's interpreters. "It is a scheduling nightmare with all of the different buildings and programs," Bell says. But the current system is so finite — with allowances for people who wanted to work the same hours so they can carpool — "It turned out to be too restrictive."

- Computer-aided design (CAD) software. "We have blueprints that are hundreds of years old — you can't keep pulling them out, putting them back and touching them," Bell says. "They need to be digitized." CAD will also come in handy for planning and construction. Bell adds that he would like the graphic subset packages "that allow us to do more of the landscaping, so when we do landscape, we can see how those plantings are going to look in 20 years by growing them on the screen."

- Knowledge-based systems. For example, there is one worker at Colonial Williamsburg in charge of mixing paint colors. He keeps the color combinations in his head and will be retiring soon. "We need to get those combinations into a computer," Bell says.

ALAN J. RYAN

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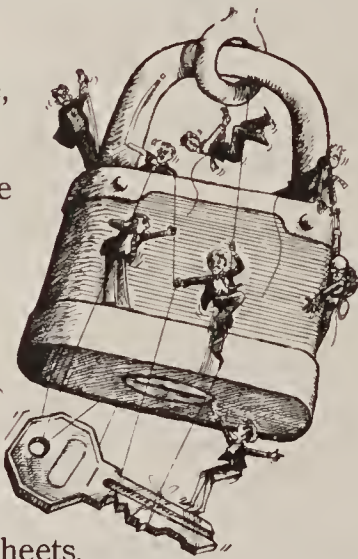
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CALENDAR

"Client/Server Computing: The Vision Becomes Reality" will be the theme of the 1989 Forrester Fortune 1,000 Technology Management Forum to be held in Cambridge, Mass., next month.

The conference, slated for Nov. 28-29, will analyze new dimensions of client/server computing, the sponsors said. Topics to be addressed include how large companies take advantage of the paradigm, why leading software developers are moving in this direction, when solutions will become available and how Fortune 1,000 users will migrate from the time-shared systems or personal computer local-area networks to client/server computing.

For more information, contact Forrester Research, Inc., Harvard Square, P.O. Box 1091, Cambridge, Mass. 02238.

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Computer Security Conference: Solutions for Today, Concepts for Tomorrow. Baltimore, Oct. 10-13 — Contact: Irene Gilbert, A254 Technology Building, NIST, Gaithersburg, Md. 20899.

Info '89: The Information Management Exposition and Conference. New York, Oct. 10-13 — Contact: Show Manager, Info '89, 999 Summer St., Stamford, Conn. 06905.

Wall Street Workstation Conference. New York, Oct. 11-12 — Contact: Deborah Rieter, P.O. Box 2248, Binghamton, N.Y. 13902.

Advanced issues in Federal Acquisition Regula-

tion. Washington, D.C., Oct. 11-13 — Contact: TTC Seminars, Dept. FAR, P.O. Box 3608, 3420 Kashiwa St., Torrance, Calif. 90510-3608.

Design Engineering Show & Conference. New York, Oct. 11-13 — Contact: Design/East, Cahners Exposition Group, 999 Summer St., Stamford, Conn. 06905.

Next Generation Networks. Washington, Oct. 12-13 — Contact: Business Communications, 950 York Rd., Hinsdale, Ill. 60521-2939.

Graph Expo '89. Chicago, Oct. 15-18 — Contact: Graphic Arts Show Co., 1899 Preston White Dr., Reston, Va. 22091-4326.

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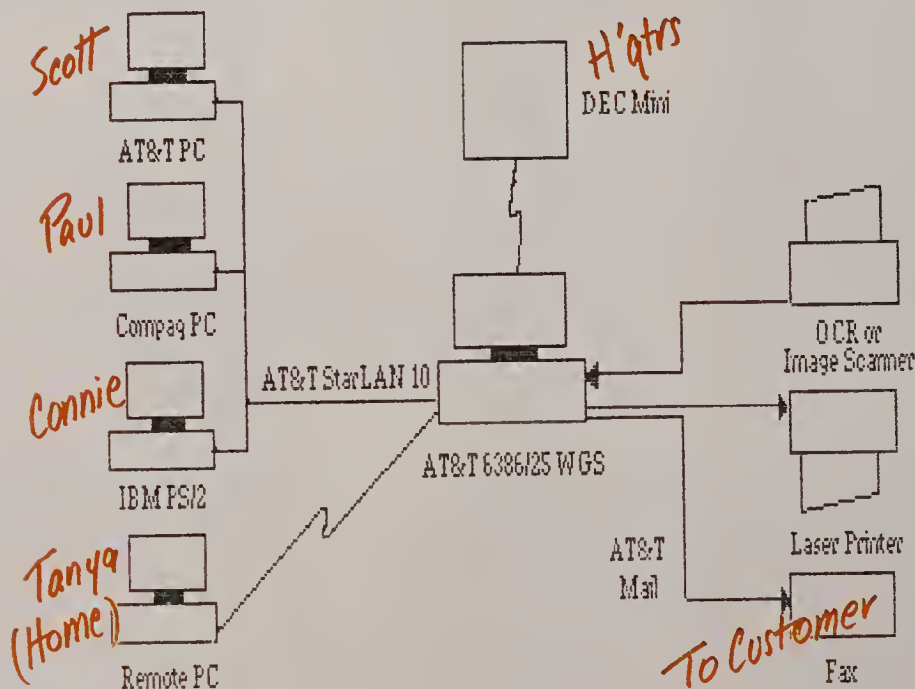
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dards (SNA in this case) that let AT&T's new Networked Computers work smoothly with the systems you already have.

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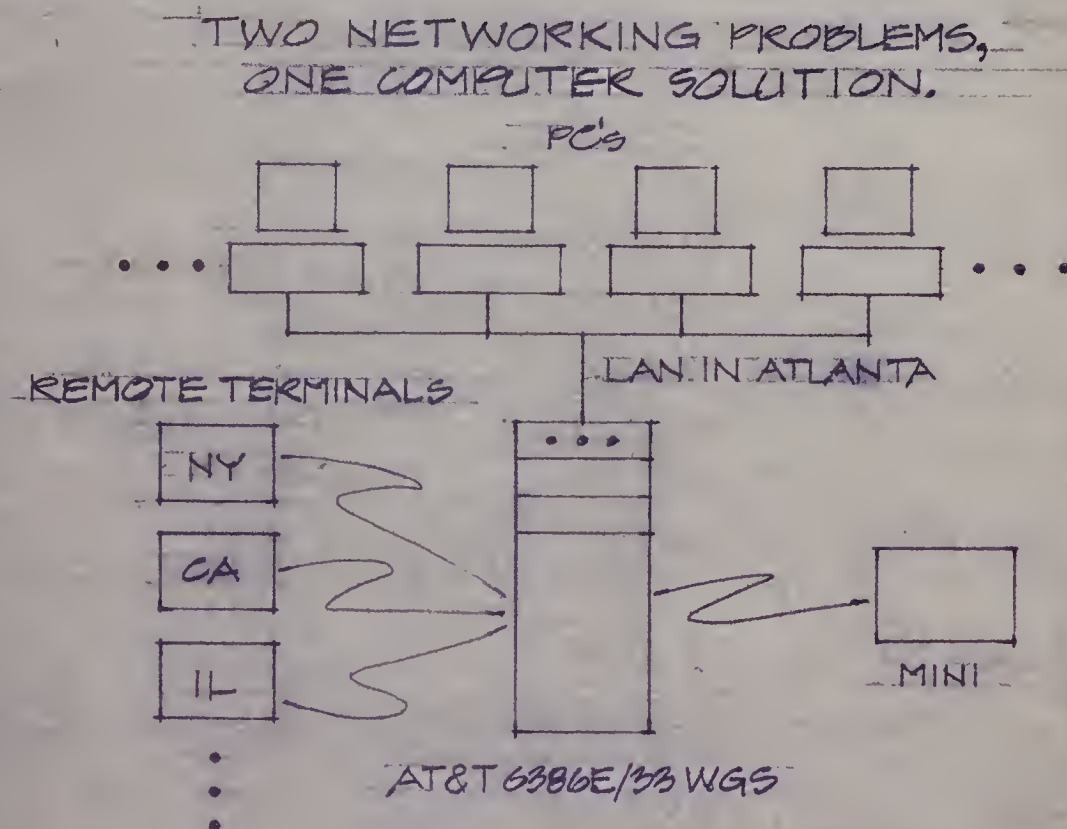
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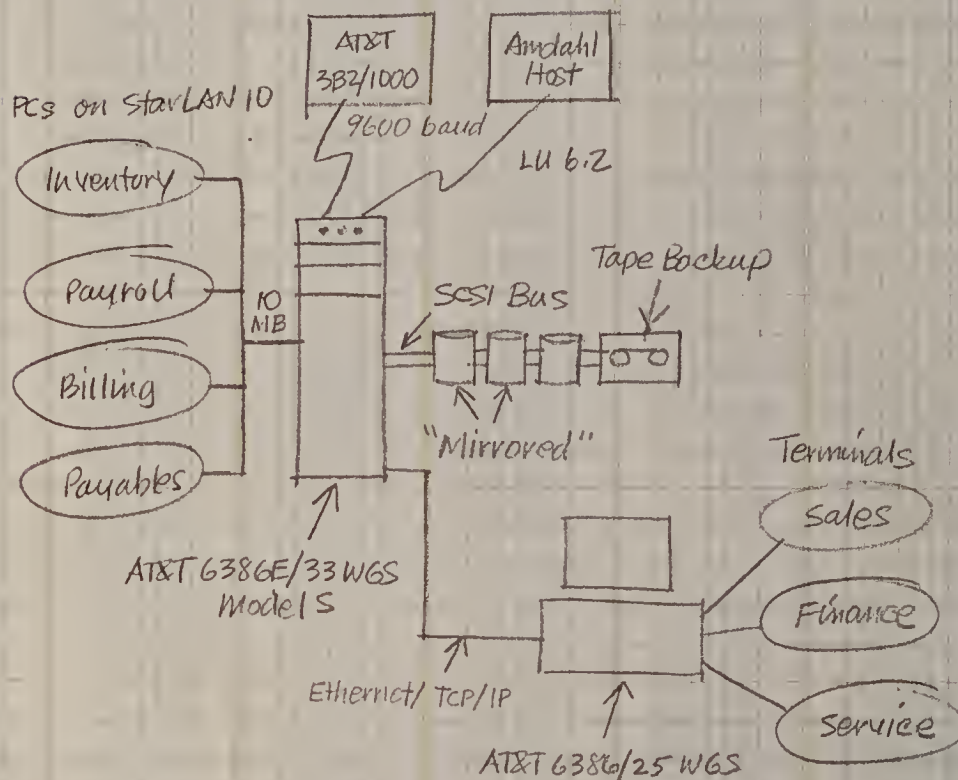
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of information from people in one department can trigger action by people in another.

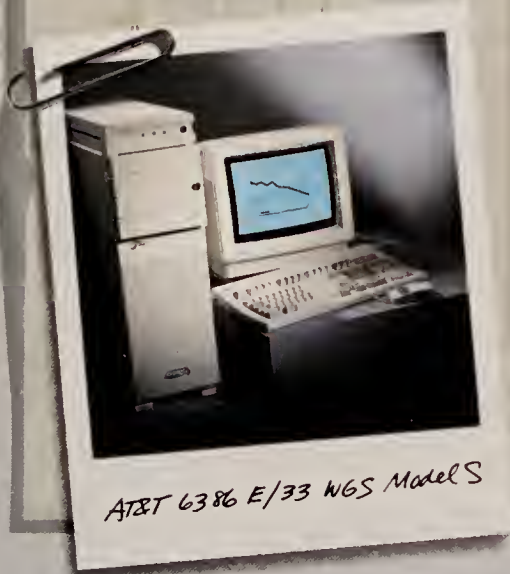
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EXECUTIVE REPORT

ACTING AS A CATALYST

The IS contribution to business initiatives

BY ALAN RADDING

When Bill Crowell, vice-president and general manager of McGraw-Hill, Inc.'s F. W. Dodge Division, thinks about new products and services, he invariably thinks in terms of IS.

That's a habit Crowell developed during the period from 1984 to '87, when he was vice-president of planning, development and finance at McGraw-Hill's corporate information systems and technology division (IS&T) and working to make that division a full-fledged partner in business initiatives. And it is not a habit that he sees any reason to break.

Right now, for example, Crowell is eagerly awaiting the completion of a relational database. The database will contain information on construction projects originally compiled for his company's Dodge Reports, which are written for the building industry. The database has been designed to permit sorting by personnel as well as projects, and, with that capability, Dodge will be able to enter the business of mailing-list rentals. Beyond that, "The new product development opportunities are endless," Crowell says.

The database project emerged from discussions with McGraw-Hill's IS&T personnel, and Crowell is hoping to hear more promising business ideas from that group. In fact, he doesn't just welcome ideas, he expects them.

That's not really surprising, given Crowell's history. During his tenure at McGraw-Hill's IS&T division, he pushed very hard to transform that organization from a backroom provider of support services into an active force for new business initiatives. Among other things, he set up a revolving \$1 million venture fund within IS&T to finance projects of this type.

At the time, the idea was rev-

Radding is a Newton, Mass.-based author specializing in business and technology.



ANDY FREEBERG

F. W. Dodge's Crowell says *that he doesn't just welcome business ideas, he expects them*

olutionary. Although there was some talk in the early 1980s about the well-publicized successes of large airline reservation systems, it was not until the last couple of years that the majority of corporate executives seriously began to think about using IS as the basis for new products and services and to look toward their IS departments for ideas.

The concept that IS not only can support but also can prompt and help develop new business initiatives springs from the dawning recognition that there is an important information component to almost every business. The challenge for IS is to combine its technical and problem-

solving skills with knowledge of the business to come up with systems-based ideas that lead to new products or new ways of doing business.

Fanning the initiative fires

There are various ways that IS can spark new business initiatives. One possibility is for the IS manager to alert line departments to new technologies that could allow the business to do something it hasn't done before or improve existing practices. Another is for the IS executive to suggest some way of reorganizing, reslicing or simply packaging existing data so that it could be sold as a product. Even a routine request for a system up-

grade or software development could give an IS professional an idea for a new kind of system that would alter and enhance current business processes.

Do IS executives really want to get that involved in the business? Some don't, but according to Randolph Johnson, manager of the systems consulting practice at Coopers & Lybrand in Denver, many more do. They recognize a change in attitude taking place at top levels and welcome the chance to become more active. "Many IS executives are dying for an innovative idea to bring to the table," Johnson says.

Bill Skowyra had such an idea while he was senior vice-president of systems at Missouri Blue Cross and Blue Shield. He began nursing the idea in 1981 but didn't get to bring it to the table until three or four years later. The idea involved leading Blue Cross systems into a new area: marketing across plan boundaries.

The opportunity came after Missouri Blue Cross lost a major account because it had difficulty servicing a large client with offices in territories of several different Blue Cross plans.

Skowyra says he believed he could use the plan's information system to bring together six different Blue Cross plans in five states. With the company president's support, he threw himself into the task.

Skowyra quickly realized that it was not simply a systems problem. "I started learning the insurance business, marketing, even underwriting," he recalls.

The project began attracting the attention of other Blue Cross plans. By 1984, the national Blue Cross association recognized the problem of serving clients across territories and launched several initiatives to find solutions. Skowyra, however, was not happy with the conservative approaches that were being considered: "I guess I was more entrepreneurial," he says.

Skowyra's efforts eventually resulted in the formation of Plan Services, Inc., a small service company based in St. Louis but

INSIDE

Nothing risked, nothing won

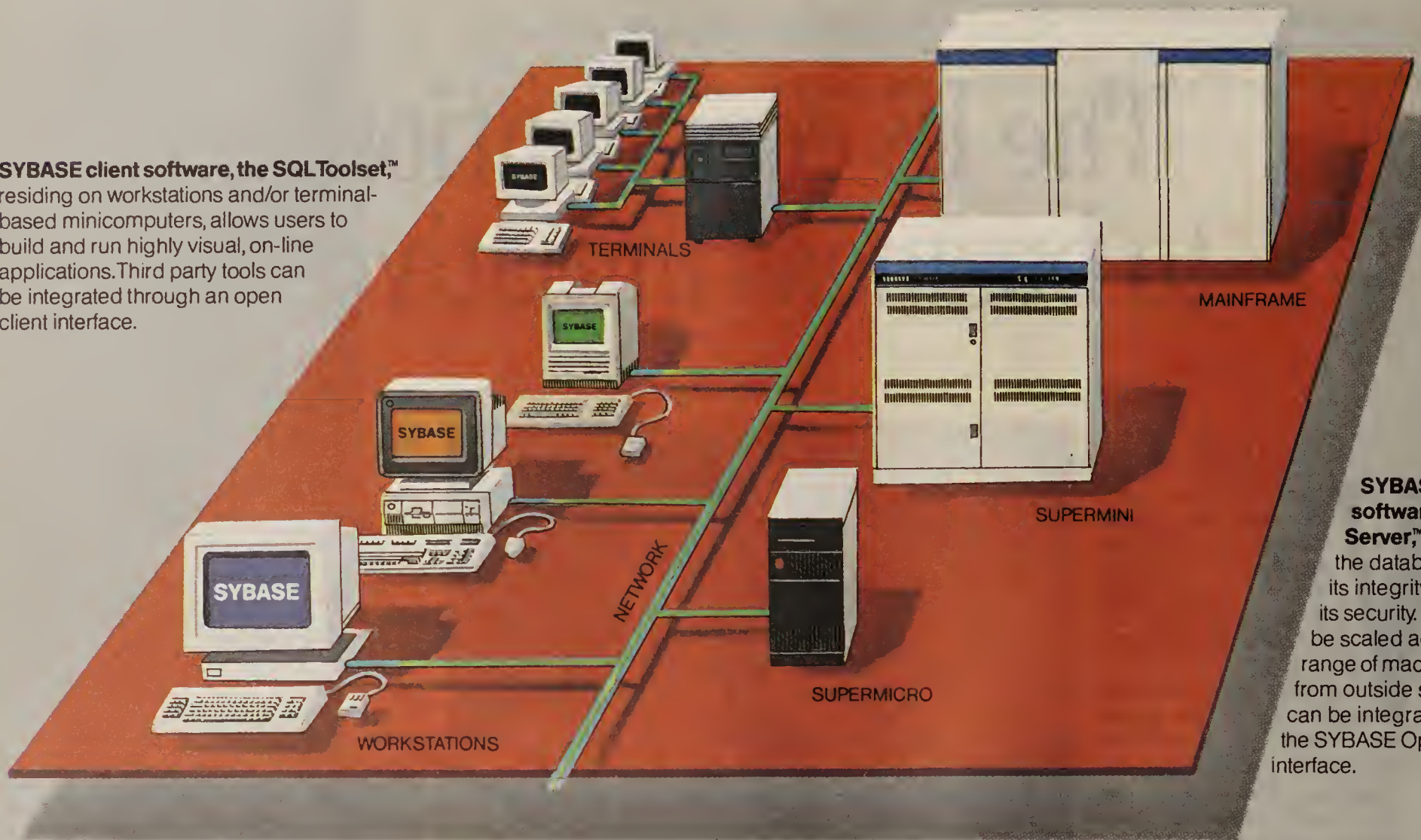
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Jumping into the new product loop

Page 69

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Initiatives

CONTINUED FROM PAGE 63

owned by about two dozen Blue Cross and Blue Shield operations.

Now that the plans are pooling information and working on the same systems, large clients do not have to be frustrated by inconsistencies. Also, the independent operations united through the service company can market their plans to widespread client companies with confidence, according to Skowyra, who is now president and CEO.

"Someone in Boston can pay a claim, and it looks just like a claim paid in St. Louis," he says.

Clearly, the best path for IS executives is within businesses where information is the product or a major component of the product. However, opportunities for IS to contribute exist in many types of businesses.

"It really isn't limited to any particular industry," says Charles Wiseman, author of *Strategic Information Systems* and president of Competitive Applications, a New York-based consulting firm. Often, the extent and value of a company's information supply is not apparent until someone, hopefully from IS, comes up with an idea of how to exploit the resource more effectively, he says.

Tricks of the trade

Almost every business has an important information component that can be turned into a new way of doing business, says Lee Gilbert, a consultant and a professor of information technology at Babson College in Wellesley, Mass. For example, Gilbert describes how an IS executive at a major toy retailer was able to build existing corporate information into a competitive advantage for his firm.

According to Gilbert, the IS manager suggested that the retailer's buyers use existing information about product movement to negotiate better allotments of particularly popular toys. The retailer refined the idea and decided to offer toy manufacturers electronic access to its product-tracking data in exchange for a commitment to provide the stores with appropriate quantities rapidly and at a favorable price. While the system flourished, the company enjoyed a significant competitive edge within the industry, Gilbert reports.

Unfortunately, the story does not have a happy ending. After a change in management, the system was scrapped. Two factors contributed to its demise, according to Gilbert: embedded resistance to change and cost-sensitivity. The system changed relationships outside the IS department in significant ways, making enemies in the process. In addition, the system cost more than the industry norm and, despite documented payback, exceeded what the new management was willing to spend.

Fleeting success, however, does not diminish this example of IS initiative as a good role model, according to both Gilbert and Robert Vitale, a vice-president of technology assessment at Prudential Insurance in New York, who worked with Gilbert on a case study of the toy retailer.

"The IS people took the lead because they felt that the information system could be effective in making money for the company," Vitale says. It was entirely new ground they were breaking, he adds. "There was no history in this industry of

businesspeople using information technology for more than routine record keeping."

But when top management changed and the high-level support disappeared, the systems initiative fell prey to snipers and became regarded as an unacceptable cost. There's a lesson in that, too: Support from top management is critical to the success of any major initiative, particularly if the project emerges out of IS, which is often less politically powerful than other departments.

"IS needs a champion, probably a CEO who wants to get more bang from his buck and who wants to do more with IS," Co-



THE THING I think we did best is that we listened to the customer."

BILL SKOWYRA
PLAN SERVICES

pers & Lybrand's Johnson says. Furthermore, that champion must be willing to work with IS to get the word out that information deployment is a critical part of the company's strategic plan.

At The Travelers Corp. in Hartford, Conn., a top priority of corporate management is to take advantage of technology in every area of the company's business. This directive is widely and emphatically communicated throughout the entire company. "At Travelers, IS is a critical factor in [our] success; the chairman made that clear," says Larry Bacon, senior vice-president of IS.

With that kind of mandate, Bacon is confident that his ideas for new business initiatives are welcome and that the funding to support new projects is there.

An early Travelers IS business initiative resulted in the Client Access and Risk Management Analysis (Carma) product. Carma is a service for Travelers' large customers that allows them to access data on employees' claims, so that they can analyze the patterns of claims and take corrective measures.

Eureka!

The claims data on which the service is based was always a critical part of Travelers' internal processes. But it wasn't until an IS staff member and a line manager teamed up on a visit to a customer site that they realized the store of information could be packaged and delivered to this and other clients. Thus, the administrative data became a competitive tool.

The best ideas often emerge from such collaborations rather than individual breakthroughs. The give and take involved in figuring out the process behind an application request is an ideal environment, for example. If, at the end of the process, it's hard to tell who contributed what thoughts, it's likely you have both a winning concept and a champion. "Whose idea it is is a moot point," Bacon says.

At Mrs. Fields, Inc., headquartered in Park City, Utah, with a chain of more than 700 company-owned cookie stores, it was actually top management's active interest in the use of technology to improve store operations that put IS on the track of innovation and led the company into diversification.

Top management has "always pushed

very hard for technology," says Paul Quinn, vice-president of MIS. At Mrs. Fields, much of the IS product development involves PC-based systems that can be put into the hands of individual store managers.

For example, "in the fast-food business, there is a problem with turnover in personnel," Quinn explains. Since local store managers hire thousands of people, Mrs. Fields wanted a system that would guide the manager in making hiring decisions. Quinn went to work on a personal computer-based expert system that was built around some 70 to 80 questions. The system analyzes candidates' responses

and advises the manager in the hiring decision.

This system proved to be so successful at this advisory function that before long, word of mouth generated frequent

inquiries from other retailers. Even though Quinn knew his message stacks were getting bigger, he says, he didn't really think about the implications until "somebody finally asked if we'd sell them the systems. They sort of had to hit us on the head with a brick." The company got the point, however, and Mrs. Fields now sells software as well as cookies.

Quinn says it was a case of the right

company management, the right corporate reporting structure and the right idea, all uniting to create a product. He reports directly to a top management group that is committed to technology and has given him authority to search out technical solutions to Mrs. Fields' business problems. "If I reported to finance, I don't think we would ever be involved in things like this," he says.

Many IS executives and their staffs have good ideas but do not enjoy the kind of access that Quinn has. But, even if you do not start out with that advantage, it is possible to earn it.

One activity that can really help is active listening. "The thing I think we did best is that we listened to the customer," Skowyra says.

Neither listening nor getting the business executive to talk comes easily or naturally, Bacon adds. But when you can put the two together, you have a climate in which initiatives for new business are almost bound to arise.

Another important step is to make an honest assessment of how IS measures up in the eyes of business managers. To a large degree, the welcome IS receives in new business circles is directly related to the experiences the business units have had in the past, says Michael Packer, a management consultant at the Mac Group in Cambridge, Mass. If perceptions linger of IS being autocratic and arrogant or of having provided poor service, then changing those attitudes and perceptions is Job No. 1.

There are many ways to correct

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a bad image. It helps, Packer says, to show an understanding of "who the customers are, what they are buying and for what reasons." He also suggests finding opportunities to show your understanding of general management issues.

Try, try again

When Crowell was trying to get McGraw-Hill's IS&T group into the mainstream business development, he was rebuffed in his first suggestion that IS&T could pursue a business desire to get involved in FM radio broadcasting. The top managers of the cable division considered IS&T expensive, apathetic and indifferent.

To overcome the division's reluctance, Crowell put together a marketing proposal as if he were wooing a valuable client.

That proposal, which was later described in a Harvard Business School case study as "a radical departure from past practice," won the argument. That IS&T had done its homework, understood the project and was enthusiastic about becoming a part of the entrepreneurial team was clear.

Earning the right to field ideas and suggestions is no guarantee of success, of course. Not all suggestions are accepted, and not all projects — even good ones — fly. That's the way things work in business. "In the past, IS was asked to computerize the world as it is. Now, it is being asked to change things and take risks," Gilbert says.

Whenever a project involves using IS to alter existing business processes, there



Travelers' Bacon

advanced development at Dun & Bradstreet Corp. in New York.

"People have a right to be skeptical, especially in a successful business," Feeney says.

Feeney's mission is to link Dun &

is the possibility of dramatically changing the entire organization, and the chances of resistance are high. You have to learn to accept that, factor it in and keep on trying, says George Feeney, senior vice-president of

Bradstreet's customers to its computers. He has been a catalyst for new business initiatives for 10 years and says he still sees "a hell of a lot of resistance." But there is nothing wrong with resistance, he continues, because it helps you develop better ideas: "More than half of our work goes into dealing with resistance to change."

Often, what seems to work best is a gradual approach. At Du Pont Co. in Wilmington, Del., for example, IS did not just start out suggesting new business ideas. Initially, the department took an educational approach and then shifted to an experimental role. During that time, the company built a collection of dozens of in-house strategic IS success stories, ranging from systems that opened new distribution channels to a variety of expert systems. "Somebody took a risk, and there was a payoff. We publicized the hell out of it internally, and they became a role model," says Scott F. Myers, business manager of networking and communications systems at Du Pont's electronics division.

Today, Du Pont executives probably would not be surprised if IS suggested a new business initiative. In all likelihood, they have already seen some of what the IS group can do, and they would quite probably be well-acquainted with the person making the suggestion. For the past five years, and starting with Myers, Du Pont has had a marketing liaison: a position that its current occupant, Dave Andrews, defines as "a catalyst for the use of information technology in marketing."

Hard nut to crack

Du Pont's IS carved an influential spot for itself over time. Resistance or inability to adapt to something new is a hard nut to crack, but perseverance eventually will prevail. Crowell's experiences back both of these points.

Look at Executive One, the FM broadcast-based service that Crowell's IS&T group designed as a means for the company to take advantage of the FM market. It barely made it off the launch pad. "Technically, it was a triumph, but it fell flat on its face," Crowell recalls.

The service made a lot of sense for a large information publisher such as McGraw-Hill. The investment was relatively small, the service could be put into place rapidly because no cabling was required, and it would not require a lot of extra effort. All that really had to be done, it seemed, was to gather information from a variety of McGraw-Hill's proprietary information sources and beam it to customers with computers equipped with a special FM broadcast receiver. The problem, as it turned out, was not the technology or the product but sales. Neither McGraw-Hill Cable nor IS&T was prepared to sell the new service. Without sales, the service languished until the technology was absorbed into the existing McGraw-Hill broadcast news feeds, and Executive One disappeared.

Perhaps it would be more accurate, though, to say that it went into hibernation. Crowell hasn't forgotten Executive One, and now that he is a top executive at a business unit, he can do something about it. Crowell plans to use the system to broadcast the Dodge Dataline. "The beauty is that the platform is already there, so I will be able to have it going in six months," Crowell says. This time, he adds, there will be a sales force ready and equipped to support it. •

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IS can't join the business till it learns the high wire

BY TED FREISER

Information systems people often talk about wanting to find their rightful role in their companies and about their need to be recognized as real contributors to the business. That won't happen, however, as long as IS remains removed from the real business world, where accountability and risk are normal parts of the job.

Realistically, IS cannot always be part of the decision-making processes within line organizations, but that doesn't mean it can't be an effective partner for those units or that it can't make a meaningful contribution to business initiatives. Idea origination is not the only way to make a mark. It is just as important to be able to take a good idea and provide a fertile ground in which it can flourish, to act as a coordinator and a facilitator of innovation.

IS can't play that kind of part, however, until IS professionals begin to take some steps that will feel like major risks. The kinds of risk-taking behaviors involved basically fall into two categories: giving up the safety of proven methods and dropping defense mechanisms.

Not-so-fatal flaws

Proven methods mean a great deal to IS. Generally, IS professionals are perfectionists, and the idea of abandoning what they've been trained to believe is the perfect way of doing something is very hard for them. What they have to learn to accept, however, is that what may seem flawed to them may make perfect business sense in their company.

Hard as that lesson may be, dropping the mantle of technology and technical superiority will probably be even harder. The jargon and the mystique that IS has built up around itself acts as a very good insulation against criticism. You can always take a stand on the basis of specialized knowledge. Unfortunately, that kind of protection not only keeps out harsh words but keeps you from being heard.

Being the technically knowledgeable arm of the business is no longer enough. Neither is simply coming up with specific answers for specifically defined requests. The days of saying, "Here we are. When you tell us what you want, we'll take your order," are over. That approach is very safe — or at least it used to seem that way — but all it does is bar IS from meaningful involvement in the business.

What IS organizations have to do, if they really want a larger role, is begin to provide options, not just answers.

The real job for IS is to come up with innovative possibilities that can be discussed with user customers and to allow those customers to make the final decision on an informed basis.

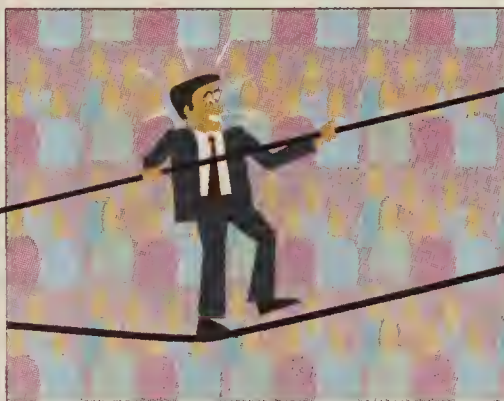
Doing this means providing a forum for the sharing of information — such as a standing committee of IS and user personnel — and finding a common language. Dropping the jargon is a start, but the issue doesn't stop there. Most IS organizations don't talk about systems development costs in terms that users can easily understand or compare against quotes from outside sources. That is because IS is accustomed to operating on the basis of

allocations rather than direct pricing. This may be convenient for IS, but it is frustrating for users, who are accustomed to knowing what they are being asked to pay, and IS organizations may have to learn to talk dollars and cents.

Operating in this way will feel risky at first, because it means sharing knowledge as well as subjecting oneself to comparison, but it is an adjustment that has to be made. IS faces stiff competition for its customers, who may turn to outside suppliers if their own IS organization fails to offer more than one solution.

IS is also going to have to switch from focusing on the process to focusing on results — on what makes good business sense. That doesn't necessarily mean giving up good IS practices, but it does mean being able to understand what is most important and being willing to entertain different ideas.

That may not seem like much of a risk to a non-IS person, but to an IS staffer, it is. What you are doing is giving up the security of doing what you know is the perfect thing and settling for something that



than available in flexible databases.

IS is approaching this issue too slowly, too tentatively and too much on an experimental basis.

Developing flexible systems in this way is risky because it's difficult. But it has to be attempted because

going to need in 18 months or two years, which is the time it currently takes IS to build a system.

Instead of expecting business managers to be clairvoyant and producing systems that either arrive too late or fail to satisfy actual requirements, IS must figure out how to create what is needed in a reasonable time frame. The way to do that is to manage data so that it can access, combine and integrate information resources.

Often, customers know that the information they need is somewhere in the company. However, they just can't figure out how to find it because it is embedded in discreet application programs rather

entation is going to be a requirement.

Part of setting the tone will be adjusting the reward system within IS. The people who are willing to throw off the safeguards should be the ones to receive the promotions, the raises and the best assignments.

Methods of evaluation

IS managers must also establish new means of evaluation. They must make customer satisfaction their criteria for success, rather than technical excellence. That's a huge risk for people who have always prided themselves on their technology skills and have always essentially built their security around those skills.

One of the most potent forces in fostering a risk-tolerant climate, however, is less active than reactive. If IS managers want their employees to accept risk, they must be willing to accept failure, because in any competitive situation in which there's risk, there's the opportunity to fail. If IS people fear the consequences of failed exploration within their own organizations, they won't build up the necessary confidence to compete and contribute as a partner in the business.

You can't be part of the real business world without accepting accountability and risking criticism. Line organizations face these realities every day. If information systems people want to be accepted by their peers, they have to be willing to share their risks. •

Freiser is president of consulting firm John Diebold & Associates in New York.

THE JARGON and the mystique that IS has built up around itself acts as a very good insulation against criticism. Unfortunately, that kind of protection not only keeps out harsh words but keeps you from being heard.

is less than ideal but will get the job done more quickly, easily or cost-effectively. Those are words that matter on the business side, though, so the risk really is worthwhile.

Focusing on results requires making the shift from standardization to customization. Essentially, IS has created what it considers technically valid environments and has expected users to adapt to them. These environments typically have been based on a series of decisions made by technical staff without consideration for business implications. Now, the challenge is to become more flexible and to construct technology platforms that can provide whatever is necessary to get the job done for a particular customer.

Another difficult but necessary change that information systems must make is to switch from an emphasis on designing applications and providing applications solutions to managing information. If IS is going to create a flexible environment that will make a difference in the business, it must come to grips with the fact that managers do not know today what they are

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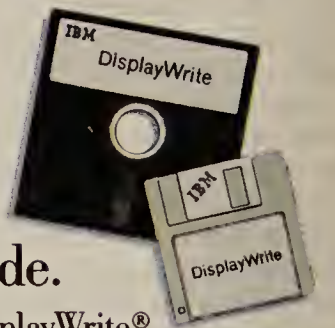
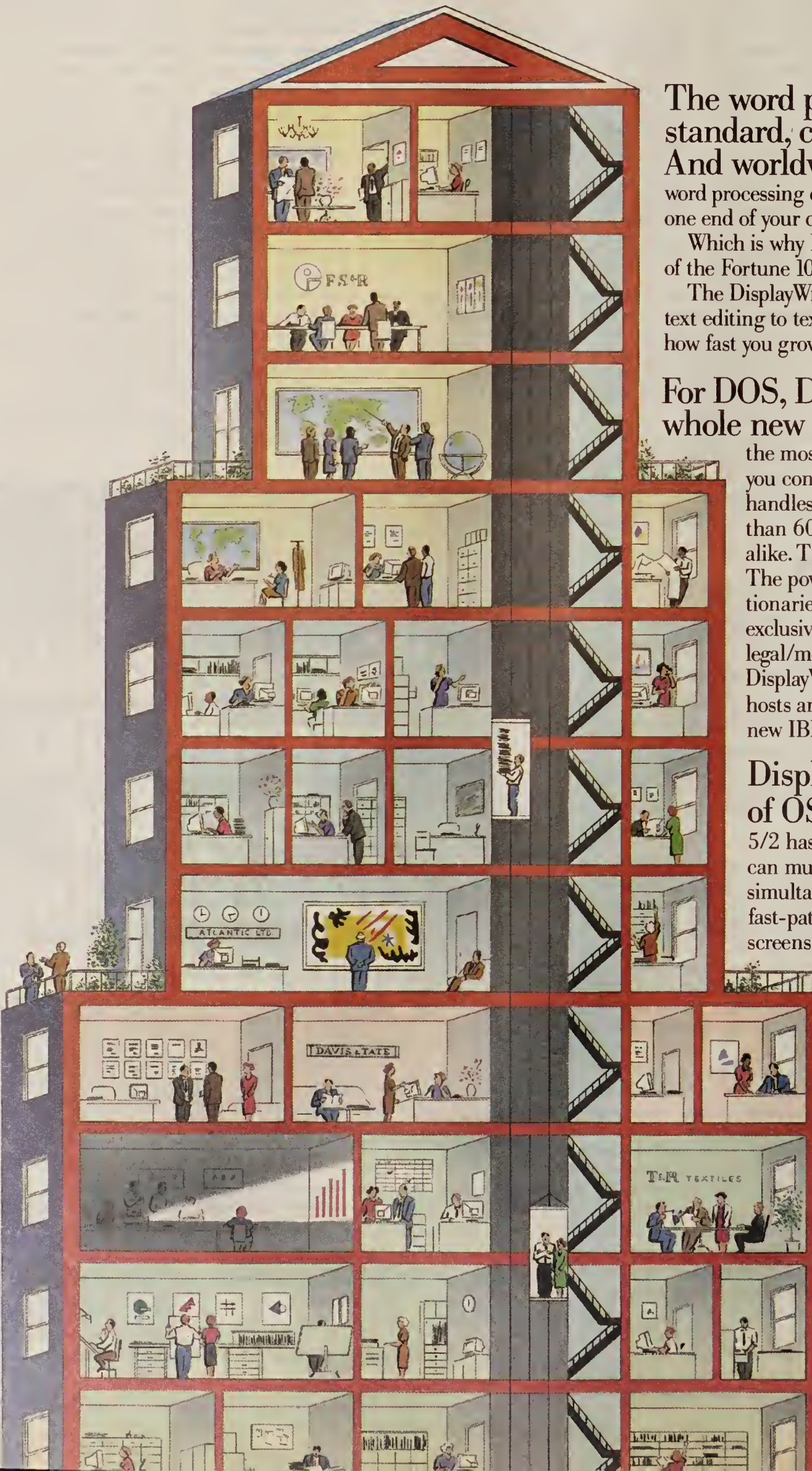
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Do more than support product development: Help initiate it

BY JOHN CUNNINGHAM

Rarely has there been a better time for IS managers to get involved in the new product development process.

In many industries, the development of new products and services has been the "mother's milk" of competitive advantage initiatives. Some firms derive more than 50% of their revenues from products that are less than three years old.

Recently, however, the introduction of new products and services has declined. There are several reasons for this: the shrinkage in research and development budgets resulting from megamergers; periods of high interest rates that have made the risk/reward ratios unattractive; and the fact that more companies are figuring out how to extend the useful life of existing products through the introduction of complementary services.

Whatever the causal factors, the result is expanded opportunity for information technologists to contribute to the product and service development process. New types of initiatives are required to exploit the situation, however, and, in some cases, new processes must be used.

Traditionally, IS involvement in product development has been limited to providing support for the engineering and design functions with systems for computer-aided engineering and design. While such support is critical, it does not begin to tap

the potential for IS input.

A few companies are starting to draw IS executives into the product-planning process. At some firms, senior IS managers sit on new product review boards and participate in the product design cycle. In other instances, IS managers have been able to provide valuable insights, particularly when their companies were attempting to enter new or untried market segments with a software product.

For example, when an industrial equipment manufacturing firm decided to develop a commercial software product for use in conjunction with its core line of equipment, a senior IS manager was drawn into the process. As a consequence of previous experience and a solid software development background, she was able to make suggestions regarding testing, packaging, distribution and release arrangements, which helped to make the introduction successful and profitable.

What you can do now

There are a variety of ways in which IS can advance the cause of product and service development. In terms of new product or service development, there are three fairly direct contributions that IS can make to the process, all of which can be accomplished with current staff:

• Product simulations.

Software-based product simulation models can provide early feasibility checks and

test beds, resulting in shorter design cycles and possibly even better products.

One consumer products firm was able to save time and improve designs when it replaced conventional "bread-boarding" techniques with simulation software; incorporating consumer feedback into the preliminary design stage through the simulator model was key. Because adjustments based on customer suggestions could be made rapidly in the design stage, more rounds of consumer testing were possible. Instead of the weeks it could take to prepare an adjusted prototype, new models were produced and ready for consumer testing within hours.

• Test-market monitoring.

Capturing both broader and deeper information from test markets is growing in importance, as companies strive to define market segments more exactly. Introducing and supporting effective database management techniques will enable quicker and more detailed analysis and permit product managers to make more effective use of test results.

• Competitor monitoring.

It is possible to glean ideas for new product features through rigorous monitoring of the competition. By selecting and managing key public or proprietary databases, IS can supply marketing analysts with critical information on points of weakness in competitors' lines or unmet demands in a marketplace. Acquisition and presentation of this information through creative information systems will provide excellent stimulation to the development team.

New service offerings can frequently

be used to enhance the appeal and extend the life of existing lines of business. Information-based services can be particularly effective for this purpose.

In such situations, an IS professional is often partnered with three or four business colleagues from line functions. The team generates a number of service concepts. Feasibility is determined by IS and then qualified in the marketplace through field interviews and focus group meetings with customers.

Companies that have tried this sort of team approach report that they not only have been able to validate team-generated product and service concepts but also have uncovered additional opportunities for new products and product upgrades in the process of testing those ideas. Furthermore, they say, collaboration between IS and line departments in the planning stages has speeded implementation of the concepts into line extensions or new service enhancements.

In addition to the direct benefits to the company, there are benefits that will accrue in the IS group as a result of greater involvement in the new product and service pursuits of the firm.

Such activities build a stronger bond between IS and senior players in the company — a bond that will carry over into other contexts. Contributions of this type raise the perceived value of the IS function, both across the business units and within the IS staff itself. •

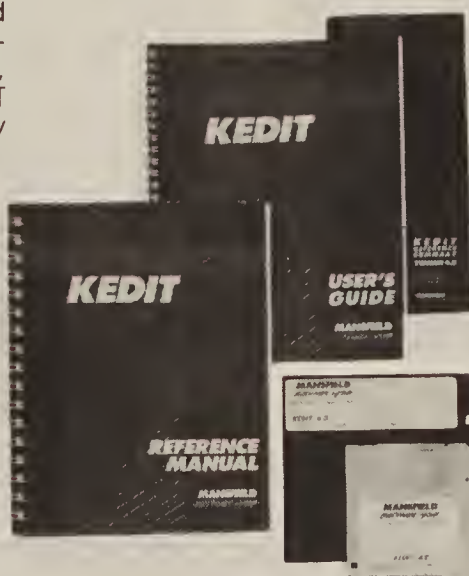
Cunningham is president of Competitive Technologies, Inc. in Easton, Conn.

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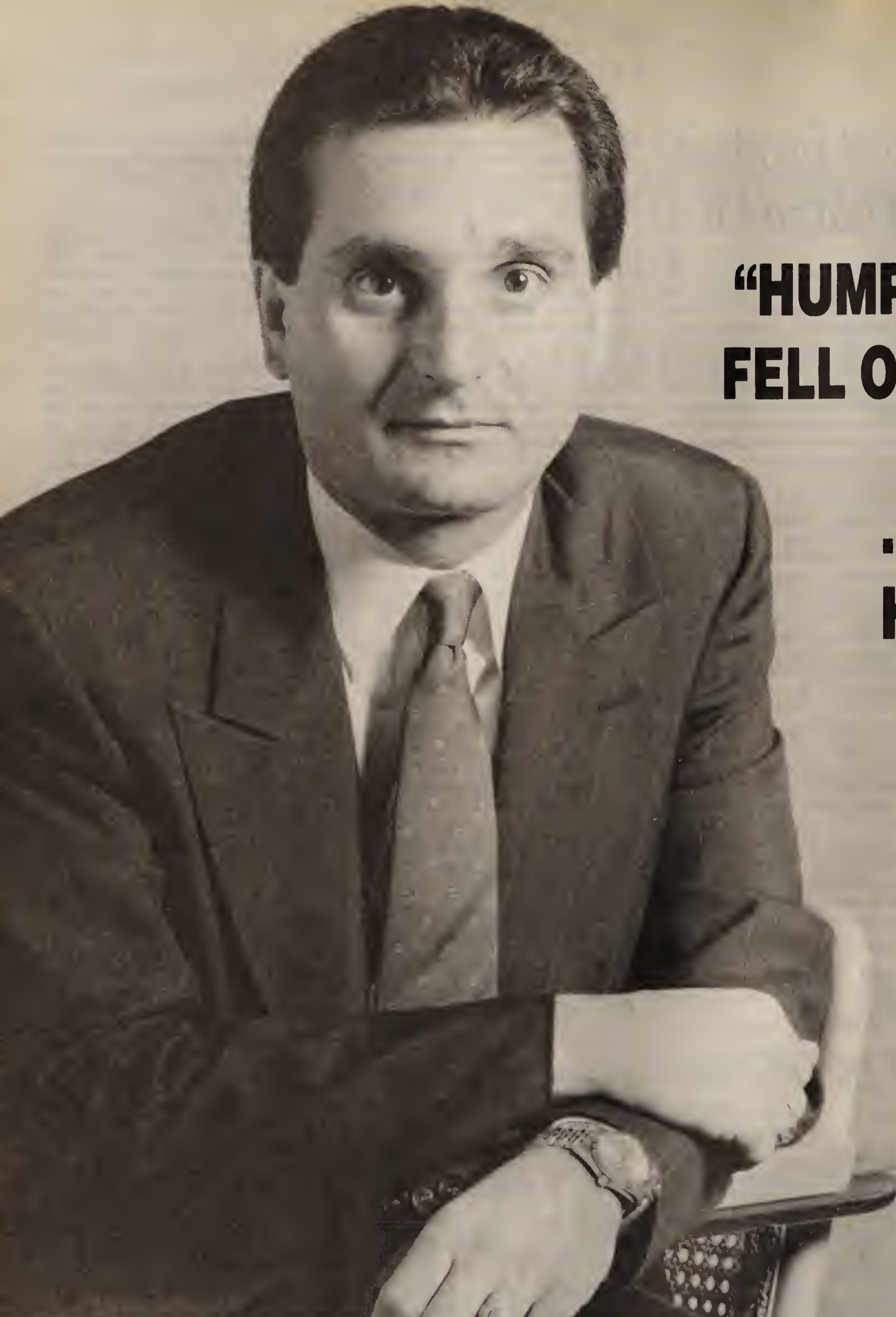
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☐ 286 systems
☐ 386 systems
☐ Peripherals
☐ Other
- B. Are you an:
☐ End user
☐ Consultant
☐ Reseller
☐ Corporate purchaser
☐ DP/MIS
☐ Owner
- C. How many business PCs do you now have installed?
☐ 1-10
☐ 11-25
☐ Over 25
- D. How many PCs does your company plan to purchase in the next 12 months?
☐ 1-10
☐ 11-25
☐ Over 25
- E. What is your primary computing interest?
☐ Corporate/Institutional
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2960

A talk with IBM's new technology chief

According to John Armstrong, 'You ain't seen nothing yet.'



JOHN MARTINI

In 1988, IBM spent more on research and development (\$5.9 billion) than the third largest computer maker grossed in revenue. But IBM's lead in innovation may be slipping. Ten years ago, the firm was the third largest filer of patent applications in the world. Last year, it was eighth.

However, those figures do not suggest that IBM has been left in the dust by foreign competition, warns John Armstrong, IBM's new vice-president of science and technology. For one thing, Armstrong says, simpler procedures and a looser definition of what constitutes a patent make those numbers misleading.

Also contradicting the belief that IBM is no longer a technology leader is its recent technology successes; the firm was the first to market 4M-bit chips, and its breakthroughs in superconductivity have been widely hailed.

Guided by Armstrong, 54, who succeeded longtime IBM technology guru Ralph Gomory, IBM continues to aggressively pursue a wide range of both new and old technologies — including semiconductors, magnetic storage, supercomputers and image processing — for incorporation into new products.

Armstrong oversees IBM's three research divisions: the Almaden Research Center in California, the Zurich Research Lab-

oratory in Switzerland and the Thomas J. Watson Research Center in New York. As IBM's chief scientist, he reports directly to Chairman John Akers.

In his first interview with a computer-industry publication, Armstrong spoke recently in his Armonk office with former *Computerworld* Features Editor George Harrar, who is now a free-lance writer based in Wayland, Mass.

A recent report showed that in 1978, the top three companies receiving U.S. patents were American, with IBM No. 3. In 1988, the top three were Japanese, with IBM No. 8. What do these numbers say about IBM's and the U.S.' ability to invent?

What it says first is that compared with 10 years ago, there are an awful lot of non-U.S. companies devoting a lot of energy to patents. I think you'd also find that the number of patents IBM applies for every year has not dropped — we have not all of a sudden started doing 50% to 60% fewer patents than before. But there are a lot more players in the game of high technology.

I was for a number of years director of research, and I looked very carefully at this question — is the number of patents from our research division over a 10-year period decreasing? The answer was no, it isn't.

I would also say that different countries have different procedures and standards as to what constitutes a patent application. So, for example, you read that in Japan there are an awful lot more patents per inventor or scientist. Well, the procedures for filing for patents in Japan are different. They can file a one-page "disclosure application," as we would call it.

Refinement vs. radical change

Your predecessor Ralph Gomory said, "In areas where our country has not been competitive, it has lost not to radical new technology, but to better refinements, better manufacturing technology or better quality in existing products."

What are you and others at IBM doing to emphasize incremental improvement, rather than encouraging your researchers to look for the breakthroughs and radical inventions?

IBM has understood for a long time that the bulk of patents have always been refinements.

IBM sets itself the goal of getting our share of patents that represent breakthroughs and our share of patents that represent incremental improvements.

I see silicon technology and magnetic storage marching ahead for another 10 or 15 years easily. That means there are still a lot of important patents to be gotten. It would be a mistake to say that we should put all of our energy on some new technology.

By the way, the Japanese know that they have been successful in incremental refinement. They are now engaged in a massive national commitment to improve the quantity and quality of basic research. It would be a foolish person who would bet against their ability to make progress there.

How much of the \$5.9 billion IBM spent last year on R&D goes to each area?

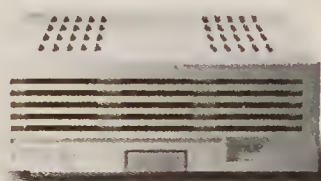
Because of the scale on which the work has to be done, development is always at least 90% of research and development.

What technology areas receive the bulk of the funding?

We've had a systematic program over the last few years of increasing our investment in software. We continue to make strong investments in semiconductors, magnetic and



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optical storage and display technologies. As an example of a very sizable investment, we are about to inaugurate a new advanced silicon technology center in East Fishkill, N.Y., which will be a state-of-the-art facility.

Shortage of technical personnel

Can IBM keep up such a broad research and development effort, considering the educational system in the U.S., which seems to be producing smaller and smaller numbers of capable engineers and scientists?

That is a worrisome matter. I saw some figures the other day on SAT scores that shows there has been a very dramatic turnaround — downwards — in the test scores of young Americans who say they want to become engineers or scientists.

As high-technology industries succeed — it's true not only in computers and electronics but I'm sure in bioengineering and pharmaceuticals — their very success raises the bar in the level of sophistication and training required to continue to make progress.

What is IBM doing to address the problem?

We are quite a substantial supporter of universities, not only in outright philanthropy but in support of contract and research work. And we are a substantial supporter of training of graduate students and young faculty.

As an example, we are supporting an advanced packaging, materials and structures project at Rensselaer Polytechnic Institute in Troy, N.Y. It is intended to be joint work with commonly agreed-upon technical goals aimed at interconnection technology for early in the next century. IBM investment is at the rate of \$500,000 for the first year, renewable for two years.

Where we thought there was an area of university education that wasn't receiving the attention it required, we have in the past few years put substantial amounts of money to build up engineering or material science studies.

At the secondary level, where the problem has to be addressed, it's a little harder to see how corporations can play such a focused role, because there are an awful lot of secondary schools in the country and it's primarily a state and local responsibility.

But, having said that, we try to strengthen the teacher's colleges with programs in math and science.

Japanese, European competition

How great is the danger to American industry if the educational problems are not addressed, or if we don't find a way to compete evenly with Japan, West Germany or even Europe in 1992?

If I accept your premise that we don't find a way to get the trained talent, the danger would be great, indeed, because we would not be capable of producing the added value that is the source of wealth.

The U.S. has an advantage that almost no other country has: From all over the world, highly trained people in science and engineering fields want to study in our graduate schools and then stay here.

So one of the things I would do while I was trying to redress the attention that is being paid in our schools to science is to also make it just about as easy as possible

THE U.S. HAS AN advantage that almost no other country has: From all over the world, highly trained people in science and engineering want to study in our graduate schools and then stay here. Our society is very appealing to people around the world. You never hear of large numbers of engineers wanting to emigrate to Japan.

for foreigners to stay here in the U.S., if they wish to.

Our society is very appealing to people around the world. You never hear of large numbers of engineers wanting to emigrate to Japan.

You don't see any danger in the high numbers of foreigners studying at MIT, for instance? Some people would like to restrict their access to certain documents or research.

We would have a very hard time staffing the research laboratories of IBM and many of the development laboratories of IBM if we didn't have access to that very highly trained talent in our graduate schools that is foreign-born.

What percentage of your laboratory staff at IBM are foreigners?

The research division has about 3,200 people, and about two-thirds are scientists and engineers. Of the new Ph.D.s we hire each year to work in our two U.S. research laboratories, about 30% of them require converting their visas to permanent work status.

I'd like to see it possible for highly trained engineers and scientists, certainly in fields of importance to our business, to convert to their permanent work status within three months after leaving graduate school. In many cases now, it requires a trip back to their country.

We are not really helping our future competitiveness by making it harder for foreign talent to settle here. Having said

that, it is no long-term solution to rely on foreigners. We ought to be growing our own talent.

Let's talk about some specific products and technologies. Do customers ask you why — with IBM spending almost \$6 billion on R&D — the company got itself into such an integration mess that SAA was designed to solve?

No, I haven't been asked that. Customers have indicated that they look forward to the benefits of SAA. The need for SAA is, in part, a reflection of the breadth of IBM's product line and our success with many aspects of it.

Voice technologies

When I visited Watson Research Center four years ago for Computerworld, I saw a speech-recognition system that was speaker-trained, worked with a business vocabulary of 5,000 words, at about 96% accuracy. What is the status of that research now?

The state of the art now is that you can get about a 95% to 96% accuracy on a 20,000-word vocabulary using a lot more computing power — which fits in an AT chassis.

We have done some field trials, and we discovered that the user interface has an enormous amount to say about how easy it is for the nonexpert to be willing to use it.

I think we will find some niche applications where the vocabulary or the con-

straints on the users are such that the systems will come into utility somewhere in the next five years.

You talk about the expected great increase in computer power. Are we coming much closer to the theoretical limits of silicon-based systems?

No, I've thought a lot about that, and we've supported a lot of work on it. IBM is now shipping 4M-bit chips — that's technology where the minimum feature size is about 8/10 of a micron.

Using advanced lithographic techniques, we have made transistors whose linear dimensions are up to 10 times smaller, which implies, in some very crude way, 100 times still greater density possibility.

And these devices work just fine as transistors. They have to work at low temperature, but that again is one of the things that will become common in the next decade. There will be a range of computers that operate at low temperature. So, a silicon transistor whose gate width is measured in hundredths of a micron works fine as a transistor.

What are the dimensions of the power you are envisioning in computer systems?

When the IBM PC came out in 1981, it was standard to have 64K bytes of memory. It is now standard to have about 1M byte of memory — a factor of 16, I guess. If we extrapolate ahead another eight or nine years, it's going to be commonplace to have 16 megs or 32 megs of memory in your personal computer.

It will become commonplace in your large systems to have enough nonvolatile silicon memory, tens of gigabytes, so you can store very large databases, which you can get at in effective system access times measured in microseconds.

It's commonplace that today's personal computer has the computing ability of the mainframe 15 or so years

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1959

1969

ago. There's absolutely no reason not to expect that the workstation of 10 years from now will have the same computing power as today's mainframe.

By the way, that is not in any way going to obsolete the need for very large systems.

Why not?

How much money people are willing to spend on computers hasn't changed much over the last 10 to 20 years. Maybe a little less than \$10 million, maybe a couple times \$10 million — but for that you can get a large system. What you get for that amount has changed dramatically in the last decade.

What you will get for that amount of money 10 years from now will be roughly the same increase in power as today's systems have over the computers of a decade ago.

Whatever power you put at the disposal of people for about \$10 million or \$15 million, they have applications that will stretch that.

What is the status of your research with Steve Chen, and why is it important for IBM to be in the supercomputer business?

It's important to IBM because it is important to our customers. It's an old-fashioned view to think that the only people who use supercomputers are the national laboratories or perhaps somebody designing a supersonic airplane.

You can't design a modern jetliner without a lot of computer simulation. It's a lot cheaper and better than building wind tunnels, which take a long time and may blow themselves up if you're not careful.

The automobile industry is beginning to simulate the airflow around cars. The use of process simulation in the semicon-

ductor industry is in its infancy.

There are also all kinds of economic models or strategy in finance or international banking — the strategy, not moving the money around — that can use enormous amounts of numerical kinds of computing.

So, the picture you ought to have about supercomputers — or what is a more accurate term, "numerically intensive computing" — society has just begun to think about what can be done.

Image processing

Image processing is a technology already embodied in an IBM product, Image Plus, in beta testing at the USAA insurance company in San Antonio. It

WE'RE NOT helping our future competitiveness by making it harder for foreign talent to settle here. Having said that, it's no long-term solution to rely on foreigners. We ought to be growing our own.

seems to be a technology with a lot of promise that isn't being embraced as quickly as people felt it would.

IBM views the kind of image processing you are describing — the ability to store and retrieve and interact with images — as an extraordinarily important application.

Image Plus goes after a very demanding end of the spectrum of those applications where the number of images is truly very large and where the number of employees or the need to interact with the image database is very large. This is the

tip of the iceberg.

As the cost of the hardware and software declines, and as the integration of those capabilities with other applications is worked out, you will see this very much more widespread.

Image processing connected to what other applications?

For example, those in the office. We will have the ability to integrate and process images in many of our applications. It will be part of text processing, publishing and banking. The manipulation of realistic images will play a very large role in engineering applications, such as CAD/CAM.

I believe that the economic justification in a business that is large and success-



JOHN MARTINI

ful for replacing warehouses full of paper is very compelling. Just as you see fax ubiquitous in the office, you'll see documents handled as images. It's terribly appealing. It's going to be everywhere.

Eliminating paper?

There are a lot of specific business cases where it pays to eliminate paper. But that's very different from thinking that you are going to eliminate paper altogether. The human factors of paper are just too good. These extreme statements

make good copy, good headlines, but they don't correspond to reality.

What specific improvements in magnetic storage do you envision?

We believe that the historic trend of the last 20 years, in increase per year, will continue to hold for the next 10 to 15 years. Therefore, there will be another 20-fold increase in storage density.

Random-access memory chips

IBM claims to be the first in the world to introduce 1M-bit chips into the marketplace and also 4M-bit chips. Will you be the first with 16M-bit chips as well?

That clearly is the name of the game. You have 24 or 30 months, whatever it is, between these generations, and it's no secret what comes after 4.

By that timetable, the industry should be looking for a 16M-bit chip from IBM by mid-to end of 1991.

We intend to be leaders in the production of high-density memory, but I wouldn't care to commit to an exact date.

Larry Bacon, the top systems executive at The Travelers Corp., was quoted recently as saying, "We are at a plateau in the use of information technology." He evidently meant a plateau in the ability of many users to absorb rapid technological change. How does that kind of statement strike you?

I don't see any evidence that the users of computers have finished with their application suite. So, if there is a plateau, at the most it's sort of a pause, because we haven't really scratched the surface of ways in which the computer can be used.

One of the things that people are talking about is that it still takes a lot of investment of highly trained analysts and programmers to bring up new applications.

From the perspective of the technologist, you ain't seen nothing yet. If you look back 10 or 15 years and see how far we have come in terms of our ability to put computing power at the disposal of individuals, you're going to see in geometric proportions that much more again over the next decade or two.

One of the principal ways in which the vastly increased computing power and memory and speed are going to be used is to improve the modalities of interaction between the user and the computer.

That statement would scare some people.

Why would it scare them?

Because they have already undergone so many dramatic changes in the office and on the factory floor. The frustration of trying to absorb such rapid change leads to the kind of statement that Bacon made. Now you're saying there is much more change and impact ahead.

You're thinking of change as being unsettling; I'm thinking of change as opening up whole new possibilities. •

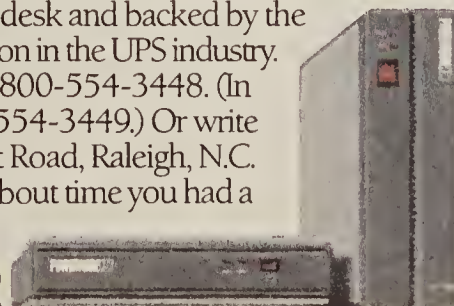
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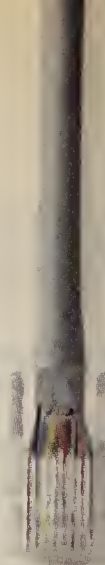


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INDUSTRY INSIGHT

Steve Manson

The bundling bandwagon



IBM's and DEC's recent decision to bundle relational database software with their operating systems

raises a good question — what will Unix hardware vendors do? Don't be surprised if they get together with database software vendors and reply with some bundling of their own.

To those who doubt it, I have three words to say: portability, performance and money.

Application portability continues to be an information systems high priority. Database vendors have capitalized on its benefits — preservation of software investment, maximization of respective platform strengths — by convincing customers to standardize on their products. But if applications can be moved between databases, a single product may not be the best answer. Cross-database portability, which is already close to reality, makes it more attractive to have different database engines on each platform. The benefits are an extension of those of distributed processing: Each system is used for what it does best. For example, consider an application that accesses real-time data from a mainframe to update a

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User focus stokes SEA success

BY RICHARD PASTORE
CW STAFF

LAKE SUCCESS, N.Y. — When the Mazda RX-7 guns for the finish line at The 24 Hours of Daytona stock-car race in January, it will not only bear the colors and sponsorship of Software Engineering of America, Inc. (SEA) — it will also neatly symbolize this fast-track data center management software maker.

SEA President Sal Simeone and Executive Vice-President Andrew Blencowe, who share a passion for an independent business course as well as for the race course, have steered their privately held firm through a steady growth pattern of about 30% a year since its founding in 1982.

Given this growth pattern, no debt and 20% profit margins, the \$50 million firm's goal of setting a \$250 million pace by 1995 seems within reach.

"I don't think that sort of growth is outrageous," said Gibbs Moody, an analyst at Hambrecht & Quist, Inc. in San Francisco. "It's a low-profile but high-quality and thoughtfully managed company."

SEA's growth machine has been fueled exclusively through profit reinvestment and acquisition. Half of its 18 IBM MVS-based software offerings — which fall into the three product lines of data management, application development and auto-

mated operations — were acquired.

The company looks for more than product source code when it goes shopping. Half of the company's recent 35% growth

we try to live it," Simeone said. To this end, SEA has instituted a diary system to record customer comments and complaints.

Each sales and technical staff member is assigned a book to re-



ANDY FREEBERG

SEA's Blencowe, left, and Simeone have fast-track designs on winner's circle

in its work force of 350 came via acquisition. "For us, the people are part of the product," said the urbane, Australian-born Blencowe, who this winter will trade the mud and dust of his motocross racing avocation for the snow and ice of downhill ski racing.

SEA's track record is a source of pride for Simeone, whose soft-spoken demeanor belies a youth spent working in Wild West cowboy shows and burning up the track at the Islip Motor Speedway on Long Island. But he is even prouder of the firm's user-based management style.

"We are driven by the user. A lot of companies talk about it, but

cord any and all customer comments. Once a month, the books are collected and the comments keyed into a personal computer, after which they are categorized and printed out for debate at monthly staff meetings. "Noth-

ing slips by," Simeone said.

Many firms have methods of soliciting user comment, but not as many put that information to use effectively. SEA "does a better job than most" companies at following up on user feedback, Moody said.

One example of SEA's responsiveness occurred when New York Life Insurance Co. was evaluating SEA's FASTGENR product. "We expressed a concern that it lacked a multiple output function," something one of its competitors already offered, said Drew Dunlop, systems programmer analyst. "Within a month and a half, they had the function added to the product."

One product — a report management and distribution package — was developed expressly because customers asked for such a package, Simeone pointed out.

Customer comments and support questions roll in at a rate of 250 calls a day, 24 hours a day, seven days a week.

Level 2 support staff answers the 5% of the queries that are too difficult for Level 1 support

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Wang fuels turnaround with \$175M credit line

BY PATRICIA KEEFE
CW STAFF

LOWELL, Mass. — Already, things are looking up for one of the biggest employers in this former mill town. Embattled mini-computer maker Wang Laboratories, Inc. recently landed a much-needed \$175 million line of credit.

Newly minted company President Richard W. Miller said the agreement provides the working capital previously cited as necessary to complete Wang's debt restructuring. "This agreement, coupled with the refinancing concluded last month with our bank group, creates a financial foundation which will allow the company to complete its operational and asset restructuring," Miller said.

However, Wang is anticipating losses through the first half of the year. Spokesman Paul Henning said the company is "hoping for profitability, or close to it," by the third quarter. He

also predicted it will be another month or two before Wang begins to restructure the business. Those efforts are expected to further impact the bottom line.

Meanwhile, cost-cutting programs continue. Wang admitted to staff cuts of about 1,000 earlier this month; industry analysts expect anywhere from 2,000 to 4,000 more cuts. Also, a program to sell certain business and assets not strategic to the core business is "progressing."

The agreement executed with CIT Group/Business Credit, Inc., a company of Manufacturers Hanover Corp., covers a three-year period. The facility comprises \$120 million in revolving credit notes secured by domestic accounts receivables and \$55 million in term notes secured by certain domestic real estate, Wang said. Availability of the revolving credit notes is subject to borrowing-base limitations that are customary to asset-based lending arrangements, the mini maker added.

AT&T zeros in on overseas market

BY RICHARD PASTORE
CW STAFF

AT&T's proposal last week to purchase British networking and computer services firm Istel Ltd. would nearly quadruple the communications giant's presence in the UK and significantly boost its Computer Systems division's scant representation in the overseas marketplace.

Until now, "our business internationally has not been a significant part of the marketplace," said Gordon Bridge, president of AT&T Computer Systems. With fewer than 10 Computer Systems employees currently in the UK, the addition of Istel's 1,800 employees would

establish AT&T as a player in that market for the first time.

The crown jewels that Istel will provide to AT&T include an electronic data interchange (EDI) service that carries three million calls per month, as well as the UK's leading travel agency network, on-line life insurance and mortgage quotation service and disaster recovery operation.

More important strategically is the access Istel provides to the royalty of UK computer services users. "With Istel, we will now have direct contact with many of the intermediate and large-scale computer users in the UK," Bridge said.

In the past, AT&T's computer business in the UK has been



largely limited to a resale operation through British Olivetti. Under this system, AT&T did not have direct contact with customers and did not provide them with specific system solutions, according to Bridge.

Currently, Istel does not incorporate any AT&T hardware

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X/Open, independents settle

BY PATRICIA KEEFE
CW STAFF

The plodding pace of the X/Open Consortium Ltd. standards group, combined with high membership fees and limited say on technical issues, recently drove

members of its independent software vendor council to balk at an offer of full membership.

However, a compromise deal worked out earlier this month should result in greater input from independent software vendors, which in turn could create a

faster route to standards setting, leading to more products being brought to market sooner.

X/Open is a London-based international consortium of Unix systems vendors working with input from independent software developers and user councils to

develop a common application environment based on de facto and international standards.

The consortium was snubbed recently by the software vendors' council, some of whose members claimed the council balked en masse at a proposal that each member ante up \$25,000 in return for the council being awarded one limited board-level vote. "Most of us felt

that the cost-benefit ratio was inappropriate," said Stan Tims, director of marketing programs for Oracle Corp.'s Unix Division.

The vendors' council has functioned in an advisory mode for about 18 months and has no vote; members pay a nominal fee of about \$500.

Roger Sippl, chairman of both Informix Corp. and the council, downplayed the issue. In fact, he said, X/Open was concerned with giving the council a seat on the board: "Money really wasn't that big of an issue; \$25,000 was just the first number they came up with." X/Open sees the value of independent vendor participation, he added.

The trouble is, not all vendors see it. Several said resistance was not related solely to the proposed fee, although there has been grumbling industrywide from both users and vendors about the cost of belonging to standards bodies in general.

Still looking for the payoff

At X/Open specifically, frustration has been mounting in some quarters based on the perception that, after a year and a half, few tangibles have been accomplished. For example, no resolutions appear to be in place. "People pay a lot more money to join other organizations," said David Fiedler, publisher of the "Unique" and "Root" newsletters, in Rescue, Calif. "While many could certainly afford to join X/Open, people may not be able to see exactly what they were getting," he suggested.

The initial — and rejected — X/Open proposal would have given independent vendors the following in exchange for their dollars: one seat or vote on the X/Open board; limitation of the vote to technical, as opposed to business, matters; and the ability to nominate one member from the council to the various technical working groups. "If we can't have access to the working groups, then there is no reason to participate," Tims said.

A compromise worked out at a Sept. 7 meeting resulted in a significantly lower fee of \$5,000 each, which was waived for the remainder of the year. X/Open also agreed that while the technical subcommittees would have one official representative from the council, as many vendors as wanted to could attend a technical meeting. The X/Open board will vote on this next month.

X/Open first approached the independent vendors on an individual basis with its proposal, Tims said. Most held off making a decision until the Sept. 7 meeting. "It turned into a feeding frenzy on X/Open management," he said.

Sippl defended X/Open, saying there was no open revolt. Both he and Tims said part of the problem has been that it has taken X/Open some time to get its infrastructure in place.

SCIENCE / SCOPE®

An imaging system that gives pilots low-altitude navigation capability at night or in poor visibility is undergoing flight tests. The Thermal Imaging Navigation Sets (TINS), built by Hughes Aircraft Company for the U.S. Navy, is being tested on F/A-18 aircraft. In operation, information from the pod-mounted, forward-staring thermal imaging sensor is processed, and the image is projected on the F-18 head-up display for improved navigation in poor visibility conditions. The TINS is based on the AAQ-16 system installed in U.S. Army helicopters.

Sophisticated guidance and control electronics enable a U.S. Navy torpedo to operate as a single, integrated system. The guidance and control subsystem of the Mk-48 Advanced Capability (ADCAP) torpedo, now in production at Hughes, is programmed in the Navy's Standard CMS-2 software language to continuously coordinate information from the weapon's autopilot, inertial navigation system, sonar array, and the ship's fire control system. Prior to launch, the submarine's fire control system sets attack functions in the torpedo's guidance and control subsystem. After launch, the torpedo receives updated information from its own sensors, and from the submarine via a long, thin communications wire, increasing the probability of the torpedo hitting its target even under acoustically warped conditions.

Communications satellites with more than twice the transmitting power of earlier models reduce the size and cost of earth receiving stations. The Ku-band HS 376 satellites, designed and built by Hughes, transmit with approximately 20 watts per transponder. At this power, earth station antennas as small as four to six feet in diameter, small enough to be mounted on rooftops, walls, or poles, can be used for both transmitting and receiving satellite signals. By comparison, lower power, C-band satellites require antennas six to ten feet in diameter for receiving capability. The high-power satellites are part of Hughes' Very Small Aperture Terminal network, which provides end-to-end satellite communications for data networking and videoconferencing.

High-power ion thruster technology may provide propulsion for orbit transfer applications. The technology, under development by Hughes for the National Aeronautics and Space Administration (NASA), will emphasize xenon ion thrusters in the five to ten kilowatt power range. A near-term application of this technology is electrically-powered orbit transfer vehicles that could be used for possible U.S. Air Force and Strategic Defense Initiative applications. Future technology development will concentrate on the multi-kilowatt to one megawatt power range for potential interplanetary applications.

Hughes Technical Services Company (HTSC™), a subsidiary of Hughes Aircraft Company, is rapidly expanding its contractor operations and logistics support to meet individual and customer program requirements. Upcoming military contracts to be supported by HTSC include simulators for the T-45 Goshawk, Fleet ASW Team Training and Landing Craft Air Cushion. HTSC presently needs engineers, programmers and field service technicians with experience in simulation in order to keep pace with new contract requirements. Qualified candidates may send resumes to: Hughes Technical Services Company, Trainer Support, Dept. S3, P.O. Box 90962, Long Beach, CA 90809. Equal opportunity employer. Proof of U.S. citizenship required.

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SEA-soned approach

BY JOSEPH J. FATTON
CW STAFF

LAKE SUCCESS, N.Y. — Fewer than 10 miles separate the cramped offices of SEA from the corporate headquarters of software giant Computer Associates International, Inc. But the companies are worlds apart in business approach, and SEA users say they like it that way. Imagine their relief to know that the small, closely held firm is not for sale — especially not to CA.

The prospect of being acquired by CA, said SEA President Sal Simeone, came up about five years ago, when he got a telephone call from Charles A. Wang, CA's president, who wanted to discuss a buyout. Simeone was not interested in selling out then and still prefers to keep his company independent and pursue his own user-driven philosophy, he said. CA officials declined to comment.

SEA customers contacted by *Computerworld* said they appreciate SEA's user-oriented approach. Shannon Ingram, senior computer specialist at Associated Insurance Companies, Inc. in Indianapolis, said he spends a lot of time talking to developers on SEA's 24-hour Help line. "We didn't have any problem with the product; we just needed to develop extra security interfaces," Ingram explained. "Most vendors dump their products on you and walk away."

Ingram also works with CA products, but the bigger company's support capabilities leave a lot to be desired, he said: "If I could take all the CA products and railroad them out of my shop, I'd be happy."

CA officials are aware that there have been problems with support. A CA spokesman said improving service and support is a "top priority in 1990. We've increased our field-support staff by 30%, and users have seen an improvement."

Gibbs Moody, software industry analyst at Hambrecht & Quist, Inc. in San Francisco, said SEA is in a good competitive position. "CA's strategy is to capitalize on a market niche through its product line, not its support and service," Moody said. "SEA can target CA users who want a higher level of support and an integrated product line."

Moody said he was aware that CA had approached Simeone with a buyout offer: "You've got to give [Simeone] credit for building SEA up from scratch. He and [Executive Vice-President Andrew] Blencowe started SEA from a Greenwich Village apartment, using the corner market's grocery carts to wheel their tapes to the post office. He's not going to cash that in to sit on a beach somewhere while his customers go through the support problems other CA users face."

SEA

CONTINUED FROM PAGE 79

to handle, according to Simeone. The technical developers are encouraged to remain on the team that originally worked on a product, a policy that fosters expertise and a family-like relationship — as it does in a racing pit crew, Simeone said.

Another unusual management strategy is the way the firm compensates sales staff, Moody said. In addition to earning commissions when they initially sell a three-year software license, if SEA salespeople are still with the company in three years, they will be paid a "sizable commission" if the license is renewed, Moody said.

"I don't know of anybody else in the industry who has structured their compensation program like that," Moody said. This approach contributes to a "very low sales force turnover, and that's important for account control and continuity."

As a result of SEA's healthy growth and market penetration, Simeone and Blencowe have received several overtures from venture capitalists and suitors, including rival Computer Associates International, Inc. (see story at left).

In fact, the co-owners said the last thing they would ever do is sell out or take the company public. Keeping control firmly within their own hands is one of the factors that enables them to pull off such radical schemes as telemarketing software overseas.

When it decided to expand internationally in 1986, SEA had the option to fork over \$5 million to set up foreign offices or else agree to sell its software through foreign distributors. The first option was too expensive, and the latter would have compromised control. "So we did our first \$6 million in overseas business right from our phone in New York," Simeone said.

SEA promptly turned those earnings into capital for UK and West German offices, and it has set up shop in other countries similarly. The firm's overseas business now accounts for 36% of sales.

If SEA's RX-7 racer does not make it to the winner's circle at Daytona, Simeone and Blencowe will not be too disappointed. The company, they say, will provide them with the thrill of victory.

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Manson

CONTINUED FROM PAGE 79

drawing that is stored on a workstation. In this case, a database excelling in transaction processing may be the best choice for the mainframe while an object-oriented database may be more appropriate for the workstation.

The never-ending performance war also points to more database bundling. Integrating database and operating system software lets engineers avoid layers of code. The result is a distinct performance improvement. With DEC and IBM exploiting this opportunity, the Unix vendors could find themselves playing catch-up in the benchmark arena. DEC's

bundling of Relational Technology's Ingres with its own Ultrix should be of particular concern to these vendors because it gives DEC a potential performance advantage in the Unix marketplace.

An obvious option is to select one of the third-party databases to bundle with the operating system and fine-tune it to be a high-performance implementation. This poses the risk of making a poor choice, but application portability would lessen the impact of switching to another product. Besides, shipping slower implementations of all databases could be just as risky.

A third factor leading toward database bundling is simple economics. The open systems game is becoming prohibitively expensive to the vendors. Put your-

THE NEVER-ENDING performance war also points to more database bundling. Integrating database and operating system software lets engineers avoid layers of code. The result is a distinct performance improvement.

self in a Unix-based hardware manufacturer's shoes. Knowing that software is now driving all sales, you decide to pay several database vendors to port their products to your hardware. What you find is that each of these must-have items costs anywhere from \$50,000 to \$1,000,000 — per release. None of these provides any competitive advantage at all because the same implementations run

on all your competitor's systems.

A more sensible approach is to select a database to integrate with your operating system. This allows you to gain a real competitive advantage with one product rather than play me-too with all of them.

Now put yourself in a software vendor's shoes. Hoping to increase your distribution channels, you have ported your software to as many hardware platforms as possible. What you discover is that these hardware manufacturers have also signed up all your competitors and have taken a hands-off approach toward recommending software. Your software is driving sales, and their hardware is going along for the ride.

Lower costs and better products would result if engineering resources were moved away from unprofitable platforms and dedicated to a few select machines. Sales, support and marketing costs would also be lower, allowing lower prices to be charged.

Today, the open systems movement is pushing for all software to be ported to all hardware. Tomorrow, bundling databases with operating systems offers a better alternative. The result will be superior performance, more functionality and a more affordable price.

Manson is an eight-year veteran computer industry engineer and marketer.



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AT&T

CONTINUED FROM PAGE 79

products into the systems integration and networking services it provides customers. This will no doubt change, as AT&T hopes to marry its hardware platforms to Istel's services, Bridge said.

For Istel, which posted revenue of \$14 million last year and initiated the estimated \$280 million to \$290 million deal, the financial backing of its new \$35 billion parent will provide leverage for its own goal of European expansion.

Bridge confirmed that AT&T will "consider applying some of Istel's offerings in the European marketplace as well as in other parts of the world, including the U.S."

The acquisition is part of a developing border-crossing trend in the industry, according to Robin Bosworth, a UK-based networking consultant. "Europe offers rich pickings for the Americans because it is in the process of deregulation," Bosworth said.

The European market for EDI alone reportedly is estimated at \$1.5 billion. The UK, traditionally more liberal than its European neighbors, makes a logical first choice for tapping this lucrative vein, Bosworth added.

The AT&T acquisition is a mirror image of British Telecom, Inc.'s recent purchase of Tymnet from McDonnell Douglas Corp. In August, the UK carrier paid \$355 million for St. Louis-based McDonnell Douglas' EDI*Net and Tymnet, gaining a significant stake in the U.S. marketplace.

Rivals see IBM bias at NIH

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — Six IBM competitors late last month accused the National Institutes of Health (NIH) computer center of having a long-standing bias toward IBM that thwarts competition, contrary to federal procurement policy.

In a letter to NIH's parent agency, the U.S. Department of Health and Human Services (HHS), the vendors complained that the NIH has persistently awarded huge contracts to IBM that were "either on a sole-source basis or were so heavily weighted in IBM's favor that no other company even bothered to compete."

The complaint suggested that, because of the alleged lack of competition, the NIH was not obtaining the lowest priced equipment or IBM's steepest discounts.

It was signed by executives of six IBM-compatible hardware vendors active in the federal market: Amdahl Corp., Memorex Telex Corp., NCR Comten Corp., Pacificorp Capital, Inc. (a systems integrator), Storage Technology Corp. and Vion Corp. (a reseller for National Advanced Systems).

The NIH had no comment on the matter, but IBM vigorously denied the charges. IBM spokesman Mark Holcomb said the complaint against NIH and a previous one against the U.S. Navy are part of a campaign intended to help the competitors gain a greater market share in the federal government.

Holcomb said the vendors' campaign has "the barely disguised goal of intimidating the government into lowering its minimum technical standards to the point where they think they can be competitive."

Naval review

The charge of IBM bias at the U.S. Navy triggered a Navy review of its procurements and a continuing investigation of federal computer acquisitions by the U.S. House Committee on Government Operations [CW, Dec. 12, 1988 and Feb. 13].

Now, the group has set its sights on the NIH Division of Computer Research and Technology — specifically, the portion of the computer center called the "IBM facility." It has six IBM 3090 Model 300E processors and serves NIH biomedical researchers as well as a variety of other agencies under time-sharing agreements.

The complaint focused on the so-called Total System contract awarded to IBM in September 1988, valued at \$823 million. Despite a \$1 million offer from the NIH for any competitive

bids, IBM was the only bidder to submit a best-and-final offer because "the depth of NIH's bias was so apparent to [the] industry that it voted against the procurement with its feet," the complaint said.

Critics said that NIH officials

managed to accumulate "sufficient paperwork so it appeared that NIH had followed all of the rules."

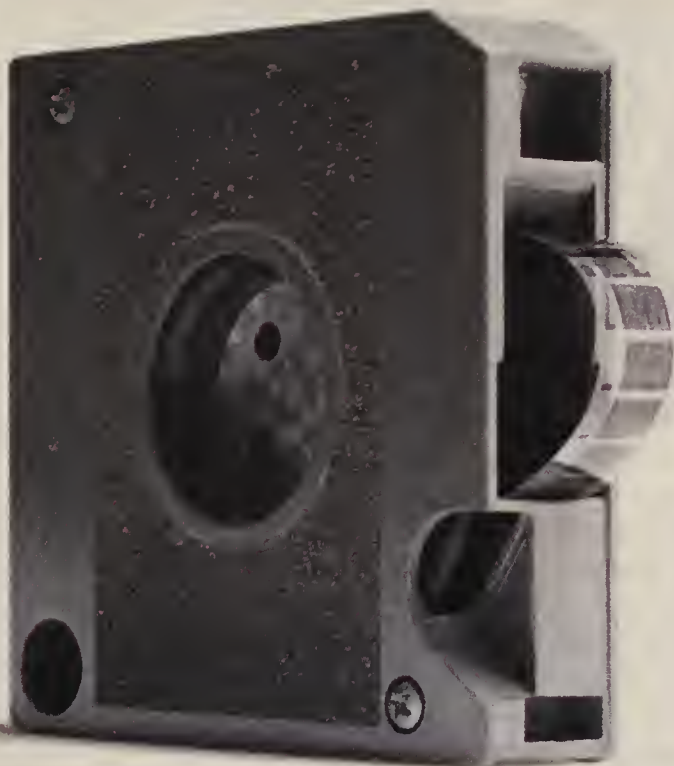
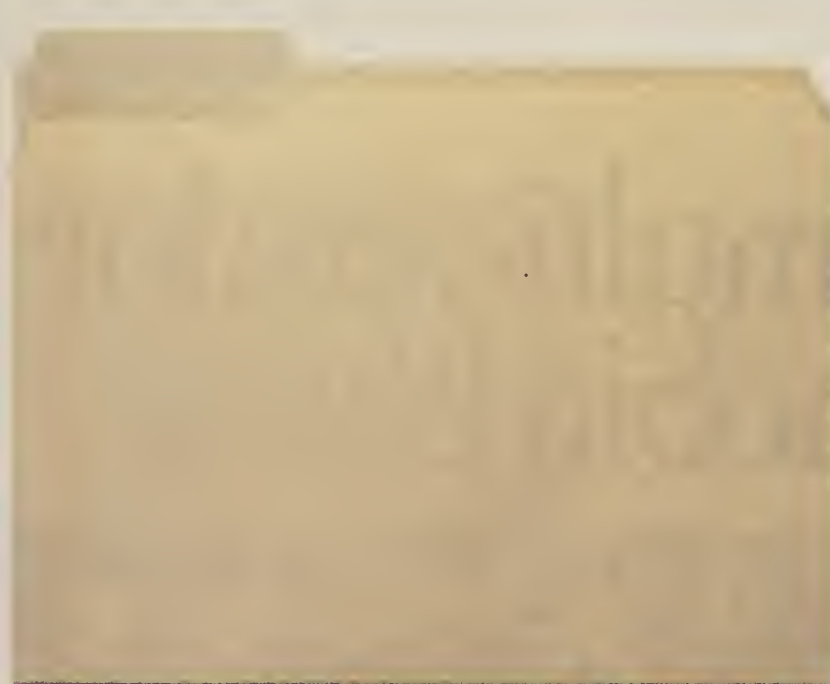
In response, Holcomb said the procurement was meant to be competitive but that other bidders dropped out because

they could not respond to the demanding technical requirements.

The coalition of plug-compatible vendors urged HHS Secretary Louis W. Sullivan to launch a new round of competitive bidding for the Total System contract — this time with more objective specifications — and to transfer acquisition authority to an office outside of the NIH.

Colleen Henrichsen, spokeswoman for the NIH computer division, said the NIH has no comment on the complaint. A January fact sheet from the computer division stated that the Total System acquisition was a model procurement that used "fully competitive, formal source-selection procedures" and had ample scrutiny from oversight agencies.

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Computer lobby group taps legislative expert as director

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — The Computer Systems Policy Project (CSPP), a new industry caucus that hopes to develop a powerful lobbying voice here, recently named an experienced legislative strategist as its executive director.

The fledgling CSPP tapped Kenneth R. Kay, a partner in the law firm of Preston, Thorgrimson, Ellis & Holman, to handle

the tasks of drafting policy positions, implementing legislative programs, building coalitions and running day-to-day operations.

Kay currently serves as executive director of the Council on Research and Technology (Coretech), a coalition that has been lobbying for extension of the research and development tax credit. He will continue in his position at Coretech and at the law firm, a spokeswoman said.

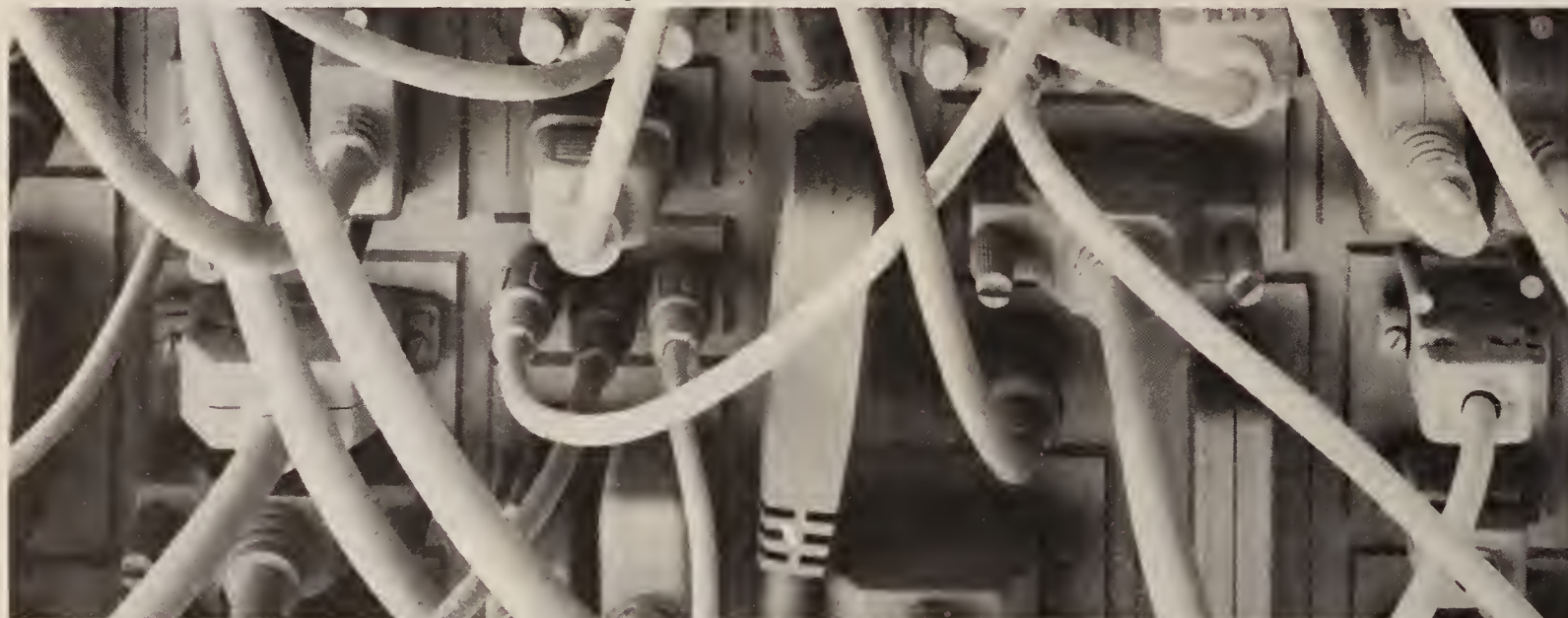
Kay's previous experience includes

stints as legislative director for U.S. Sen. Max Baucus (D-Mont.) and counsel to the U.S. Senate Committee on the Judiciary.

Nine computer systems makers — led by IBM, Hewlett-Packard Co. and Tandem Computers, Inc. — formed the CSPP earlier this year to lobby government policymakers on technology, trade and education policy. Another member, Control Data Corp., was added in the last few weeks.

Michele Norman, executive assistant for the coalition, said a meeting of the 10 members' top executives is tentatively scheduled for Nov. 20 to discuss a formal agenda. The other CSPP members are Apple Computer, Inc., Compaq Computer Corp., Cray Research, Inc., NCR Corp., Sun Microsystems, Inc. and Unisys Corp.

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IN BRIEF

Ask, again

Continuing the fine old John Cullinane tradition, **Ask Computer Systems, Inc.** founder and former Chief Executive Officer **Sandra Kurtzig** emerged from retirement last week to return to her company as chairman, CEO and president. Current CEO **Ron Braniff**, under whose stewardship Ask revenues have more than doubled, will stay on as a director and "full-time advisor" to the company, according to an Ask spokesperson.

Everybody's doing it, doing it, doing it

Woodcliff Lake, N.J.-based **Unisys Corp.** subsidiary **Timeplex** last week completed its acquisition of T3 networking systems start-up **Broadband Telesystems Corp.** Meanwhile, mainframe-based electronic data interchange (EDI) translation software purveyor **Transsettments, Inc.** is about to be acquired by personal computer-based EDI software and services provider **Harbinger EDI Services.**

I'd rather be . . .

Bruce Holland, president and chief operating officer of computer-aided design, manufacturing and engineering vendor **Dazix**, abruptly resigned last week from the company to pursue "noncompetitive outside interests," according to a company spokeswoman.

Wonder of wonders

Tired of taking bets on how many consecutive games the Boston Red Sox can win once they're mathematically eliminated from the pennant race? If so, maybe you'd like to try your skills on this one: For how many consecutive quarters following the last prediction that "Oracle can't possibly keep it up" can **Oracle Corp.** keep it up? Oracle last week announced a 94% revenue increase to \$175 million and a 65% net income surge to \$12 million for the first quarter of fiscal 1990, ended Aug. 31.

All in the family

Even before the company unveils its new agenda later this month, **Prime Computer, Inc.**'s new look is showing: Former **Datapoint Corp.** vice-president and CFO **Harvey Wagner** has succeeded the departing **Dick Goldman** as CFO of Prime. Prior to Datapoint, Wagner spent three years as a financial executive at **American Microsystems, Inc.**, a subsidiary of **Gould, Inc.** — the company turned around by new Prime CEO **James McDonald.**



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 - 22. Dir./Mgr. Tech. Planning, Adm. Svcs., Data Comm. Network Sys. Mgt.; Dir./Mgr. PC Resources
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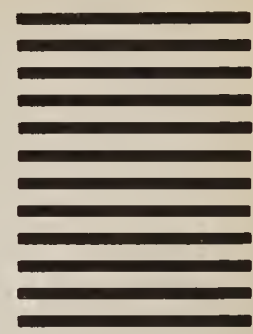
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* The Wall Street Journal (1987) — "Survey of the Information Processing Marketplace".

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Managing global networks

There's still lots to learn and very little tradition in this brave new world

BY DAVID A. LUDLUM
CW STAFF



Many companies have recognized that to compete internationally, they must communicate through a global computer network — “a worldwide enabler,” in the words of Alan Chase, group manager for information systems technical services at Eastman Kodak Co.

Kodak's voice-messaging system, for example, now links tens of thousands of employees, and its data communication facilities connect computers from Singapore to New York. A growing appreciation of the importance of such networks has brought a rise in the status of network specialists, along with a shortage of qualified people to assume the positions, experts say.

The shortage was driven home earlier this year when Merrill Lynch & Co. put its telecommunications services up for bid. Among the motives, said Executive Vice-President DuWayne Peterson, were the “deeper skill base” that companies like AT&T or MCI Communications Corp. could bring to the task. According to Peterson, “Good telecommunications people are harder and harder to find

now because the job is more complex.”

“There are networks that have not been constructed because of the lack of good people,” says Kenneth Bosomworth, president of International Resource Development, Inc., a market research firm in New Canaan, Conn.

Expert shortage

This shortage of qualified network specialists reflects a demand for people familiar with the array of technologies in a large network who also possess the business and management savvy required to help run one. “It's necessary to develop the deepest possible understanding of the technology,” such as protocol translation and Open Systems Interconnect standards, says Mark Bigelow, a network architect at Bechtel Group, Inc. in San Francisco. “A lot of people try to approach the field thinking they can do it based on their administrative skills, but the technical complexity is very real.”

Even voice communication, once a separate dominion, is now often incorporated into data networks, especially as companies combine them in T1 lines, notes Marvin Sirbu, an associate professor of engineering and public policy at Carnegie-Mellon University in Pittsburgh.

Voice and data are not only sharing common transport facilities, but they are also increasingly merged on the applications level, Sirbu adds. An example is a system that allows a salesperson to read the telephone number of an incoming caller and use it to tap into a customer database. “If there are few people who understand the physical transport lev-

“**A** LOT OF PEOPLE try to approach the field thinking they can do it based on their administrative skills, but the technical complexity is very real.”

MARK BIGELOW
BECHTEL GROUP

el, there are fewer still who understand how to bring them together on the application level,” Sirbu says.

The combination of voice and data in an application also steps up the demand for business knowledge on the part of communications specialists, he says.

Business skills are also important on the planning level that Bigelow works on. “It involves coordination with a number of locations and people,” Bigelow says. “Project management and people skills are a necessary part of the mix.”

Sirbu points to the capital-intensive nature of global networks as another source of demand for business acumen. “Increasingly, a global network is a large service-oriented business,” he says. “Like any other business, it calls for skills in management.”

Many IS organizations hire network experts from the public carriers, Bosomworth says. He suggests prospective network managers work at such firms, where career paths are better established, rather than trying to break into user companies.

work ranks at Kodak, working as an operator after a few years in IS development at the Rochester, N.Y., headquarters and in voice and data communications in a London office. “My operations background gave me a fundamental grasp of the technologies used on the network,” he says. “Now, I'm able to manage all the technology — PBX, fiber optics, videoconferencing.”

Chase, who is responsible for billing Kodak users for their network services through a charge-back arrangement, credits the operations experience with helping him gain more understanding of network costs.

Mengden, like most of his employees, has acquired much of his training on the job. Bigelow has found himself in the same situation. “It's obviously not a subject one goes to college and comes out with a degree in,” he says.

That is beginning to change, however. Sirbu is helping direct the Information Networking Institute, a joint project of Carnegie-Mellon and Bell Communications Research Corp., the research arm of the divested Bell operating companies. The institute brings together courses in telecommunications, computer science and management and awards master's degrees in network management. The first 24 students began classes in late August, and a 14-week continuing education program is scheduled for later this year.

Ludlum is a *Computerworld* senior writer.

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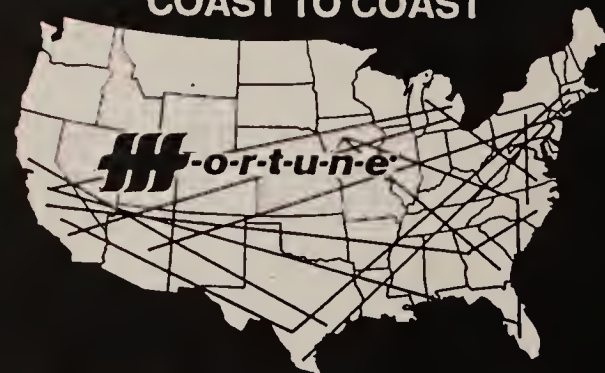
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PROGRAMMERS, PROGRAMMER ANALYSTS & SYSTEMS ANALYSTS:

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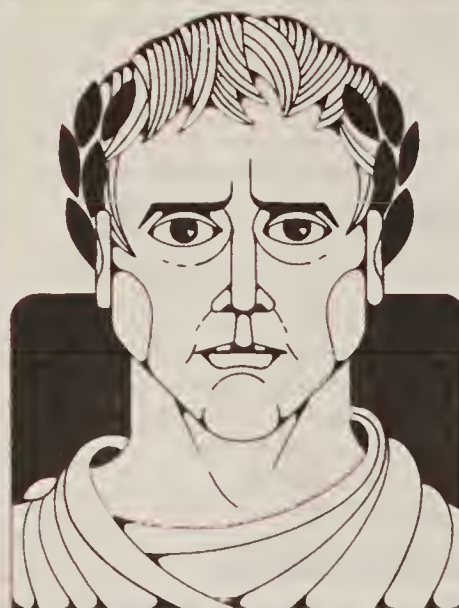
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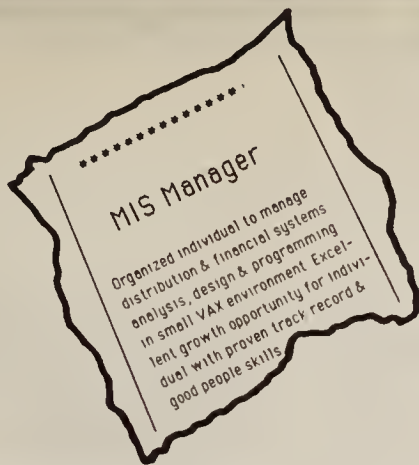
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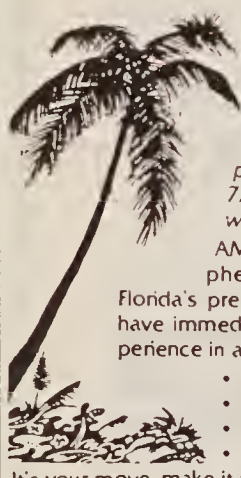


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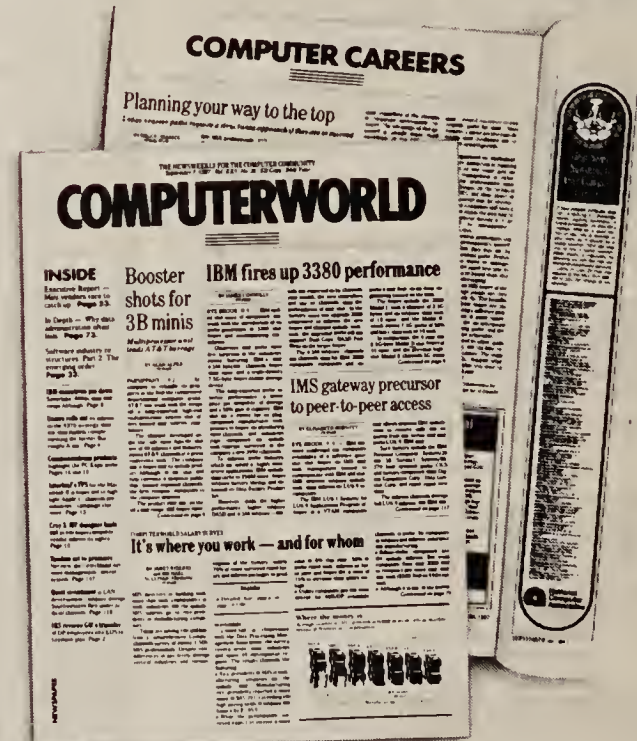
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MARKETPLACE

Microcomputers by the day

Short-term PC rentals allow IS managers to meet peak or one-time needs

BY DAVID A. LUDLUM
CW STAFF

To avoid hiring additional employees, information systems managers often bring aboard contract programmers. More recently, IS managers have turned to short-term personal computer rentals to help meet their hardware needs.

Most PC rentals are for periods of months and provide a source of processing similar to leasing; however, a growing number of PCs are being rented for a few days or weeks.

About 24% of rentals by members of the National Association of Computer Dealers earlier this year were for 30 days or less, up from 21% two years ago. "It's definitely a growing market, growing as fast as the micro market itself," says Ray Davis, executive director of the Houston-based association.

About four-fifths of short-term PC rentals at Micro Rent Corp. in Corte Madera, Calif., are by large corporations, and about 75% of those are arranged by an IS manager or someone in a similar capacity, says Erin Miller, marketing director at the company, which operates four outlets throughout the state.

Short-term PC renters most

often need the machines when they are traveling to exhibitions or arranging training sessions.

"You just can't maintain 10 machines to go around to trade shows with," says David Dadoly, a product manager at DCA Engineering Software, Inc. in Henniker, N.H. "They bring them in for you and set them up in any configuration you specify."

Bernie Olander, PC/IS administrator at Kaman Aerospace, Inc., a helicopter maker in Bloomfield, Conn., has rented PCs for training sessions and a word processing project that was prompted by a government audit and required additional workers.

Booming demand

Architectural and engineering design projects also contribute to the demand, as does desktop publishing and tax-season number-crunching. Portable computers used by traveling business people are also frequently rented for the short term. Other renters try out equipment they might buy or work with a rental until their broken machine is repaired or replaced.

Convenience is the big motive for many short-term rentals. "I can call my account rep, and he can set me up anywhere in the

U.S.," Dadoly says. The arrangements usually require two day's notice, although that varies by location, he adds.

Reliability is a major concern, especially for rentals at exhibitions or for other demonstrations, and dealers promise a

RENTALS ARE "definitely a growing market, growing as fast as the micro market itself."

RAY DAVIS

NATIONAL ASSOCIATION OF COMPUTER DEALERS

quick response to problems.

"They'd be here in an hour or two if we ever had a problem," Olander says.

"We don't bother to fix them. We just replace them," hopefully within two to four hours, says Scott Burgess, national accounts manager at Personal Computer Rentals in Cranbury, N.J. Micro Rent sometimes gives customers a spare machine, according to Miller.

PC renters work in a variety of ways. Many are independent operations that focus on a geographic area, whether it is California or a neighborhood served by one storefront outlet. There

are six or so national chains, each operating a handful of locations throughout the U.S.

Finally, a few nationwide networks arrange rentals through franchises or affiliates. The largest such operation is Personal Computer Rentals, which works through 48 franchises in the U.S., including one in Puerto Rico.

Recently, the company's owner, George Reitsma, purchased one of the rival chains and

Dadoly finds the expense worthwhile for managing trade show exhibits: "If I have to box up three computers and send them to Cleveland and do the same thing to get them back, the cost is going to be a few hundred dollars. Renting them for \$500, there are fewer headaches, and the savings is there."

Naturally, the expense can become a concern if a rental goes on too long. "Unfortunately, a lot of time we rent longer than we should have, and we would have been better off buying in the first place," Olander says.

The break-even point is usually about six months, Olander says. If he returns a rented PC after that, he may have paid as much as it costs to buy the machine but has nothing to show for it except an expense that will reduce taxes, he says.

Ludlum is a *Computerworld* senior writer.

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The BoCoEx index on used computers

Closing prices report for the week ending September 22, 1989

	Closing price	Recent high	Recent low
IBM PC Model 176	\$550	\$625	\$400
XT Model 086	\$725	\$1,150	\$700
XT Model 089	\$1,050	\$1,400	\$950
AT Model 099	\$1,475	\$1,850	\$1,400
AT Model 239	\$1,700	\$2,100	\$1,700
AT Model 339	\$1,750	\$2,000	\$1,700
PS/2 Model 50	\$1,575	\$2,000	\$1,500
PS/2 Model 60	\$2,700	\$3,300	\$2,500
Compaq Portable I	\$500	\$750	\$325
Portable II	\$1,700	\$2,000	\$1,650
Portable III	\$2,350	\$2,800	\$2,200
Portable 286	\$1,600	\$2,000	\$1,600
Plus	\$750	\$1,200	\$675
Deskpro 286	\$2,025	\$2,350	\$1,700
Deskpro 386	\$2,750	\$2,900	\$2,500
Apple Macintosh 512	\$525	\$650	\$300
512E	\$550	\$925	\$450
Plus	\$1,000	\$1,150	\$750
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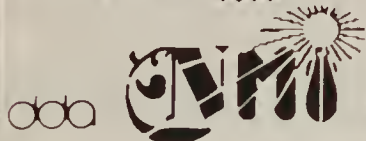
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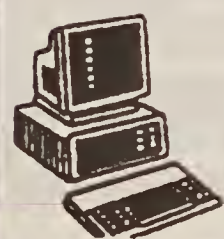
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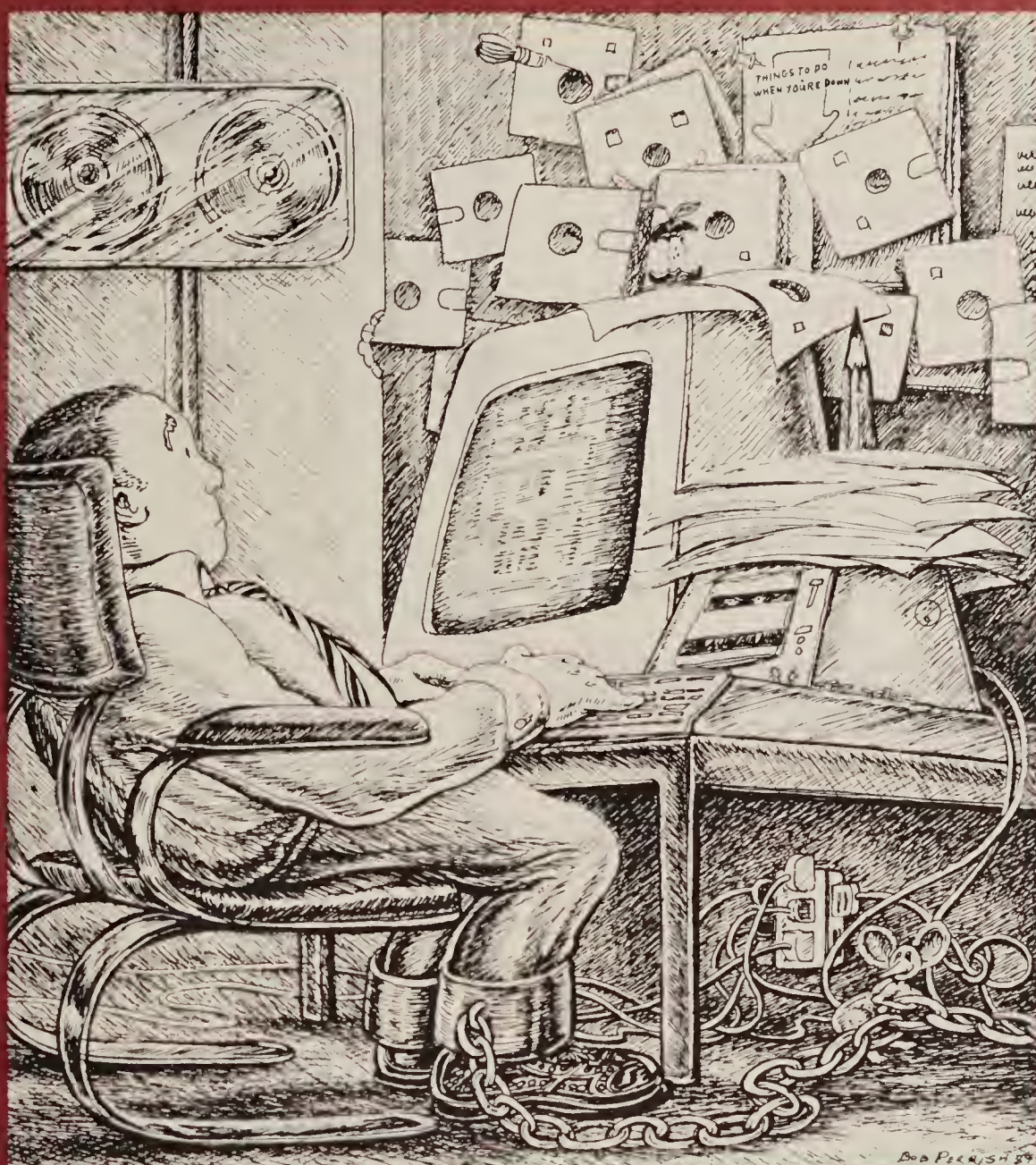
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Sealed proposals will be received by the CDPA, 301 N. Lamar St., 301 Building, Suite 508, Jackson, MS 39201 for the following equipment and services.

Request for Proposal No. 1659, due Friday, October 27, 1989 at 3:30 p.m. for the acquisition of a servicing agreement from qualified vendors to provide the services necessary to perform the majority of the daily operational functions of the Mississippi Guarantee Student Loan Agency, a division of the BOARD OF TRUSTEES OF STATE INSTITUTIONS OF HIGHER LEARNING.

Request for Proposal No. 1661, due Thursday, October 12, 1989 at 3:30 p.m. for the acquisition of an upgrade for an IBM System/38 minicomputer for ITAWAMBA COMMUNITY COLLEGE.

Detailed specifications may be obtained from the CDPA office. The CDPA reserves the right to reject any and all bids and proposals and to waive informalities.

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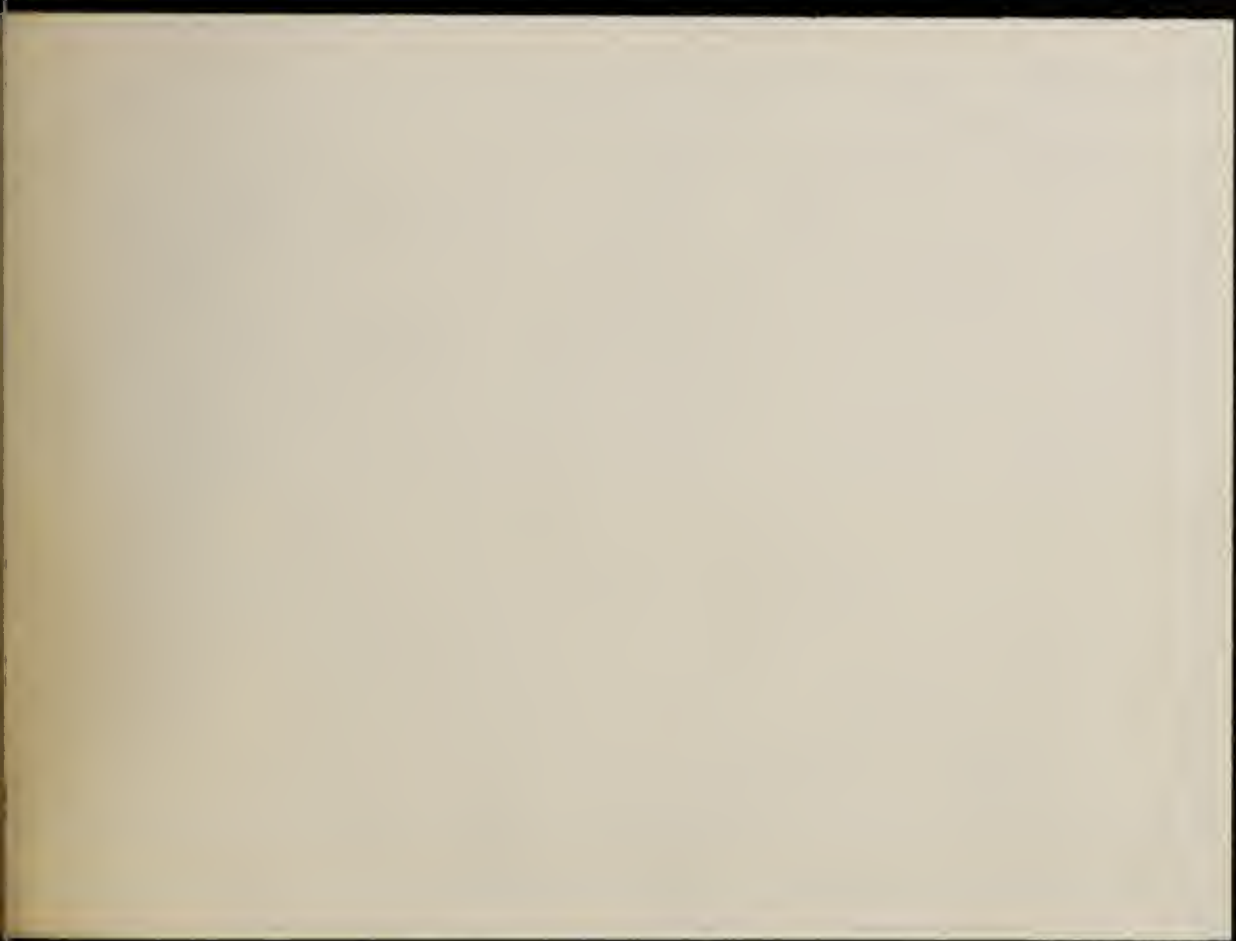
Tina Smithwick, 2nd Fl., 109 Park Row, New York, N.Y. 10038, 212-406-3171.

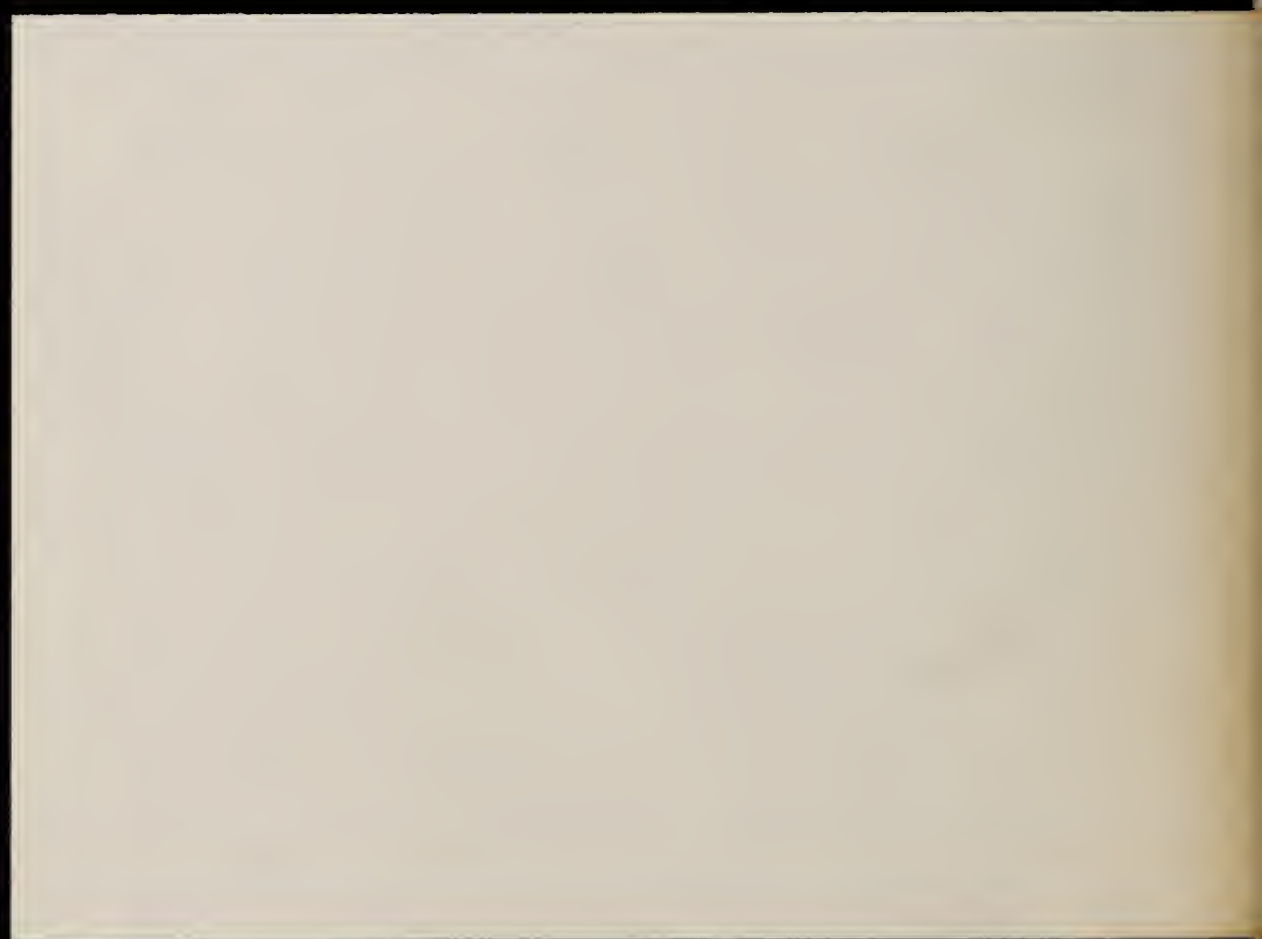
A Proposer's Conference is scheduled for 10:00 a.m. on Monday, 10/23/89 at FDNY Headquarters 250 Livingston Street, Brooklyn, NY 11201 in the 7th Floor Commissioner's Conference Room. Proposals must be received by Wednesday, November 8, 1989.

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Preparing end users for CASE

It presents an exercise in change management that works in four stages

BY MARK DUNCAN
SPECIAL TO CW

Alas, the long-suffering end user! He has had much to tolerate, comprehend and get accustomed to in information systems development, and now CASE is going to require him to tolerate, comprehend and get accustomed to even more.

End users will play a critical and legitimate role in computer-aided software engineering (CASE) applications development and thus should be an essential part of any readiness training. The following are elements of that training:

- Increased involvement during development and throughout the software's life cycle.
- Greater savvy regarding system development.
- Familiarity with CASE terminology.
- An understanding of why CASE is expensive in the earlier phases.

The greatest impact of CASE on users will come in their increased involvement across the development life cycle.

Traditional life cycles, with their relatively independent phases, require involvement only at isolated steps of the process. CASE-oriented life cycles, on the other hand, favor increased user involvement for a number of reasons. Prototyping produces deliverables earlier and more frequently, and users are required to verify these deliverables. Indeed, through such CASE techniques as joint application design (JAD), users may be heavily involved in actually producing some of the deliverables.

User involvement will also increase in the testing phase. Sophisticated tools with test-script generation and record-and-play-back will facilitate user testing.

Naturally, a prerequisite to this increased involvement is greater knowledge of system development on the part of users. In CASE system development, users are considered members of the development team. Knowledge of each others' roles will facilitate communications and make it easier for all the members of the project team to understand precisely what is ex-

pected of them.

A further benefit comes in the area of project cost estimates. Where a user might have previously questioned a high-sounding estimate, now he may understand how it was arrived at. He now sees firsthand the effort that goes into a product's development.

Fledgling tech

The emergence of CASE has spawned a lot of new terminology and revived some terms that were waning from lack of use, such as reusability and business model. One of the first things a trainer can do is prepare a glossary of CASE terms for users. A starter list should include CASE, JAD, prototyping, code generation, repository and data administration. Eventually, it may even incorporate reverse engineering, re-engineering, Systems Application Architecture and object-oriented.

Another aspect of CASE implementation users may have some difficulty with is the greater costs inherent early in the life cycles. With traditional life cy-

cles, costs tend to peak at coding and testing. CASE-oriented life cycles are most heavily loaded with resources during the earlier phases of analysis and design. Since code generation is automatic and testing requirements are diminished because of the superior quality of the code, the latter phases do not require as many resources.

The fact that the user will be billed more heavily early in the CASE life cycle is offset by the greater deliverables available then — namely, system design, system prototyping and even documentation.

The trainer must also point out that the benefits of CASE-style system development do not center around improved productivity solely during the development process.

Productivity improvement also comes after the system is in production in the form of more robust software that fails less frequently. Those bugs that do occur can be corrected with greater ease and with the knowledge that other parts of the system are not inadvertently corrupted.

Even the productivity improvement during development comes 18 to 24 months after CASE implementation, when people obtain fluency in all tools

and techniques.

There is one other — possibly far-reaching — effect of CASE implementation. Greater automation in system development will ultimately obviate the need for heavy-duty technicians. Instead, system development will demand more business savvy, communication ability and facilitating skills.

Users at the helm

Many subscribe to a vision of the future in which users will begin to take more control over their systems during development. The once farfetched notion of users leading and managing their own projects begins to sound less absurd.

Users, therefore, should welcome any training that will acquaint them with CASE, for it is a style of development that will dominate the future.

Perhaps this converging of skills — the user gaining system development knowledge — is just what the IS doctor ordered. In preparing the user for CASE implementation, the trainer may well be breeding a hybrid user of the future — a business analyst, technical specialist and system developer rolled into one.

Duncan is a quality assurance consultant at a large Dallas bank.

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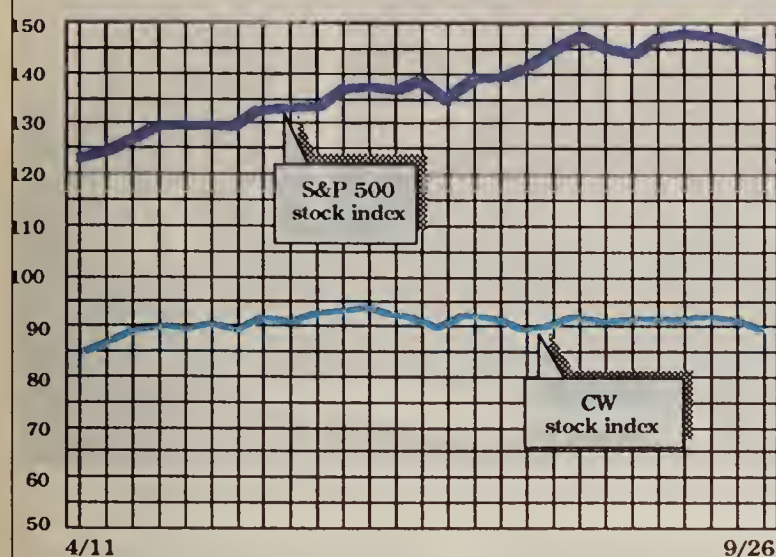
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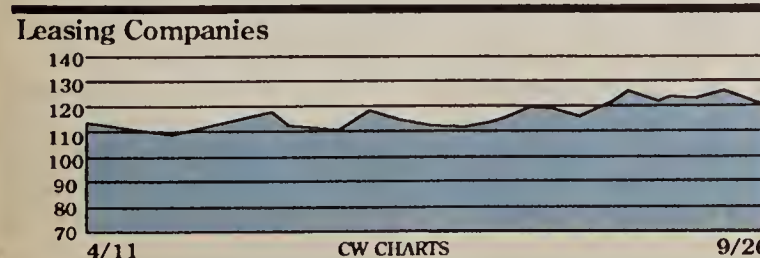
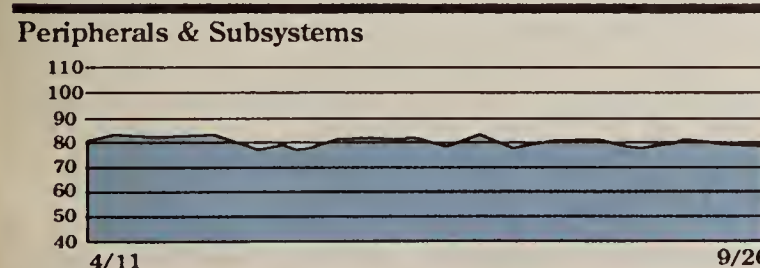
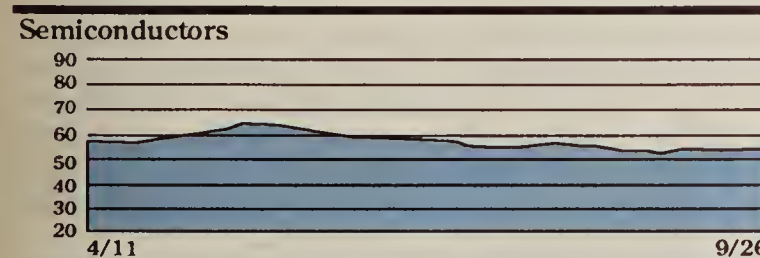
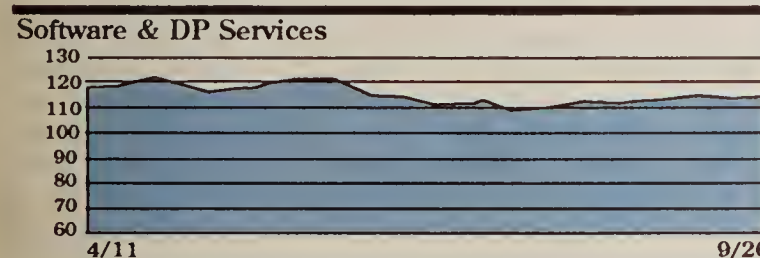
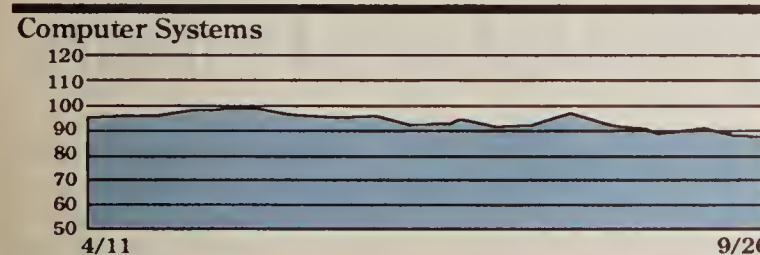
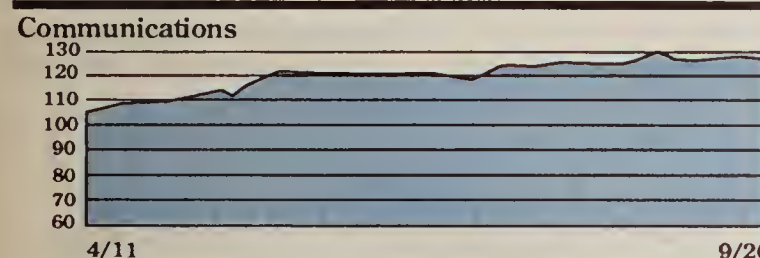
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Indexes	Last Week	This Week
Communications	128.7	126.9
Computer Systems	88.8	87.3
Software & DP Services	114.1	114.3
Semiconductors	54.0	54.3
Peripherals & Subsystems	79.6	78.3
Leasing Companies	125.6	119.9
Composite Index	90.6	89.3
S&P 500 Index	146.1	145.1



CW CHARTS

Computerworld Stock Trading Summary

CLOSING PRICES WEONSOAY, SEPT. 27, 1989

EXCH	52-WEEK RANGE	PRICE CLOSING SEPT. 27, 1989	WEEK NET CHNGE	WEEK PCT CHNGE
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Communications and Network Services

N	AMERICAN INFORMATION	64	46	62.5	-0.8	-1.2
Q	TECHS CORP	26	16	23.5	-0.5	-2.1
Q	ARTEL COMMUNICATION					
Q	CORP	9	2	7.375	-0.6	-7.8
N	AT&T	43	26	43	1.1	2.7
N	AVANTEK INC	7	4	5.875	0.1	2.2
N	AYDIN CORP	21	13	19.75	0.1	0.6
N	BELL ATLANTIC CORP	100	69	98.375	0.4	0.4
N	BELLSOUTH CORP	55	39	53.875	-0.5	-0.9
Q	COMPRESSION LABS INC	11	3	10	-0.1	-1.2
Q	COMPUTER NETWORK TECH	3	1	2.501	-0.1	-3.6
Q	CONTEL CORP	35	18	33	-0.4	-1.1
Q	DATA SWITCH CORP	7	3	3.25	-0.6	-16.1
Q	DIGITAL COMM ASSOC	26	17	20.625	0.1	0.6
Q	GYNATECH CORP	21	17	19.5	0.0	0.0
Q	FIBRONICS INTERNATIONAL					
Q	INC	7	3	5.75	-0.3	-4.2
Q	GANDALF TECHNOLOGIES	7	4	5.875	0.0	0.0
N	GENERAL DATACOMM INDS	7	4	5.875	0.1	2.2
N	GTE CORP	62	42	60.375	0.3	0.4
Q	INFOTRON SYS CORP	13	9	9	-0.3	-2.7
Q	ITT CORP	65	48	60.125	-0.1	-0.2
N	MA COM INC	10	6	6.5	-0.4	-5.5
Q	MCI COMMUNICATIONS CORP	46	19	44.5	0.6	1.4
N	NETWORK EQUIPMENT TECH					
Q	INC	27	14	25.125	-0.8	-2.9
Q	NETWORK SYS CORP	12	8	9.375	0.0	0.0
Q	NORTHERN TELECOM LTO	23	14	21	0.8	3.7
Q	NOVELL INC	38	24	28.25	0.5	1.8
N	NYNEX CORP	84	65	79.875	-1.0	-1.2
N	PACIFIC TELESIS GROUP	47	29	44.875	-1.0	-2.2
A	PENRIL CORP	9	3	7.375	-0.6	-7.8
N	SCIENTIFIC ATLANTA INC	21	11	21.125	0.9	4.3
N	SOUTHWESTERN BELL CORP	58	39	55.875	-0.1	-0.2
Q	3 COM CORP	29	12	12.5	-1.0	-7.4
N	US WEST INC	74	55	70.625	0.4	0.5

Computer Systems

Q	ALLIANT COMPUTER SYS	6	3	5.625	0.8	15.4
Q	ALPHA MICROSYSTEMS	8	5	6.5	-0.1	-1.9
Q	ALTOS COMPUTER SYS	9	6	6.75	0.0	0.0
A	AMOAHL CORP	23	13	13.625	-1.9	-12.1
Q	APPLE COMPUTER INC	50	34	44.75	0.1	0.3
N	BOLT BERANEK & NEWMAN	15	7	7.75	0.0	0.0
N	COMPAQ COMPUTER CORP	102	51	88.25	0.1	0.1
N	COMMODORE INTNL	20	9	9.625	0.1	1.3
Q	COMPUTER AUTOMATION INC	7	3	2.625	-0.1	-4.5
N	CONTROL DATA CORP	24	16	18.5	-0.1	-0.7
Q	CONVEY COMPUTER CORP	15	7	12.875	-0.4	-2.8
N	CRAY RESH INC	73	41	42.5	0.3	0.6
Q	DAISY SYS CORP	8	3	3.5	-0.4	-9.7
N	DATA GEN CORP	21	14	14.75	-0.4	-2.5
N	DATAPOINT CORP	6	3	5.5	0.0	0.0
Q	DELL COMPUTER CORP	13	6	7	0.1	1.8
N	DIGITAL EQUIP CORP	122	86	93.625	-3.3	-3.4
N	FLOATING POINT SYS INC	4	2	1.625	-0.1	-7.1
N	HARRIS CORP	38	25	37	-0.5	-1.3
N	HEWLETT PACKARD CO	62	46	51.25	-0.3	-0.5
N	HONEYWELL INC	92	57	82.375	-1.9	-2.2
N	IBM	131	106	111.5	-4.5	-3.9
Q	INFORMATION INTNL INC	16	12	13.875	0.0	0.0
Q	IPL SYS INC	9	3	7.375	0.4	5.4
N	MAI BASIC FOUR INC	19	3	3.75	0.4	11.1
N	MATSUSHITA ELEC INOL LTO	204	158	167	7.3	4.5
Q	MENTOR GRAPHICS CORP	22	12	18.25	-1.5	-7.6
N	NBI INC	3	1	1.5	-0.1	-7.7
N	NCR CORP	67	51	58.25	-2.3	-3.7
N	PRIME COMPUTER INC	21	8	8.25	-0.8	-8.3
Q	PYRAMID TECHNOLOGY	20	9	13.75	0.5	3.8
Q	SEQUENT COMPUTER SYS					
Q	INC	35	15	34.125	0.1	0.4
Q	SHAREBASE CORP	4	1	1.188	-0.3	-20.8
Q	SILICON GRAPHICS CORP	24	14	24	1.0	4.3
Q	STRATUS COMPUTER	35	21	25.375	1.1	4.6
Q	SUN MICROSYSTEM INC	23	13	15.625	-0.8	-4.6
Q	SYMBOLICS INC	3	1	1.5	-0.1	-4.0
N	TANOEM COMPUTERS INC	24	14	22.75	0.5	2.2
N	TANOY CORP	49	38	46.625	-0.8	-1.6
N	ULTIMATE CORP	12	7	9	-0.6	-6.5
N	UNISYS CORP	33	19	18.875	-1.3	-6.2
A	WANG LABS INC	11	5	5.5	-0.1	-2.2

Software & DP Services

Q	ADOBE SYS INC	30	14	17.25	-2.51	-12.7
Q	AMERICAN MANAGEMENT					
Q	SYS INC	19	11	13.25	0.1	1.0
Q	AMERICAN SOFTWARE INC	20	9	17.875	0.1	0.7
N	ANACOMP INC	10	5	4.875	-0.5	-9.3
Q	ANALYSTS INTERNATIONAL					
Q	CORP	20	7	18.5	-1.1	-5.7
Q	ASHTON TATE	27	11	11.25	-0.6	-5.3
Q	ASK COMPUTER SYS INC	18	8	9.875	1.4	16.2
N	AUTO DATA PROCESSING	47	36	45.625	1.0	2.2
Q	AUTODESK INC	42	23	38.75	-0.3	-0.6
Q	BMC SOFTWARE INC	25	8	22.125	-1.6	-6.8
N	BUSINESSLAND INC	15	10	13.125	0.4	2.9
Q	COGNOS INC	9	5	5.25	-0.1	-2.3
N	COMPUTER ASSOC INTL INC	22	13	16.25	-0.1	-0.8
Q	COMPUTER HORIZONS CORP	10	7	6.75	-0.4	-5.3
N	COMPUTER SCIENCES CORP	56	44	51	-0.5	-1.0
N	COMPUTER TASK GROUP INC	17	11	11.125	-0.4	-3.3
Q	COMSHARE INC	40	18	40	2.3	6.0
Q	CORPORATE SOFTWARE	16	9	14	0.8	5.7
N	GENERAL MTRS (CLS E)	56	39	54	-0.9	-1.6
Q	HOGAN SYS INC	7	4	5.25	-0.4	-6.7
Q	INFORMIX CORP	12	7	10.25	-0.1	-1.2
Q	INTELLICORP INC	5	3	4.625	-0.1	-2.6
Q	KEANE INC	19	7	18	0.0	0.0
Q	LEGENT CORP	31	16	27.5	-0.5	-1.8
Q	LOTUS DEV CORP	29	15	27	0.0	0.0
Q	MANAGEMENT SCI AMER	12	6	10.125	0.1	1.3
Q	MICROSOFT CORP	68	45	66.625	1.6	2.5
Q	NATIONAL DATA CORP	35	19	34.5	3.0	9.5
N	ON LINE SOFTWARE INTL INC	8	4	7.625	-0.1	-1.6
Q	ORACLE SYS CORP	23	7	22.625	1.8	8.4
N	PANSOPHIC SYS INC	18	12	15.375	-0.1	-0.8
Q	PHOENIX TECHNOLOGIES INC	19	4	4.25	0.0	0.0
Q	POLICY MANAGEMENT SYS					
Q	CORP	37	22	33.5	-1.0	-2.9
Q	PROGRAMMING & SYS INC	20	13	19	0.3	1.3
Q	RELATIONAL TECH INC	16	8	8.625	0.1	1.5
N	REYNOLDS & REYNOLDS CO	34	20	26.125	0.3	1.0
Q	SAGE SOFTWARE INC	10	6	7.75	0.0	0.0
Q	SEI CORP	20	16	19.625	0.5	2.6
Q	SHARED MED SYS CORP	20	14	16	0.1	0.8
Q	SOFTWARE PUBG CORP	29	16	23.5	1.9	8.7
A	STERLING SOFTWARE INC	9	5	8	0.1	0.8
Q	SUNGARD DATA SYS INC	21	13	19	-0.3	-1.3
Q	SYSTEMATICS INC	38	26	36	0.0	0.0
N	SYSTEM CENTER INC	26	14	21.25	-0.6	-2.9
N	SYS. SOFT INC	30	13	27.75	-0.8	-2.6
Q	WORDSTAR	3	2	2.063	0.1	6.4

Semiconductors

N	AOV MICRO DEVICES INC	11	7	8.625	0.1	1.5
N	ANALOG DEVICES INC	13	10	9.75	-0.1	-1.3
Q	ANALOGIC CORP	11	7	10.375	-0.4	-3.5
Q	CHIPS & TECHNOLOGIES INC	26	11	20.25	1.0	5.2
Q	INTEL CORP	34	19	31.625	0.4	1.2
Q	LSI LOGIC CORP	12	7	7.125	-0.1	-1.7
Q	MICRON TECHNOLOGY INC	26	12	12.875	-0.1	-1.0
N	MOTOROLA INC	62	36	57.875	0.5	0.9
N	NATL SEMICONDUCTOR	11	7	8.375	0.6	8.1
N	TEXAS INSTRS INC	47	35	38.375	-1.5	-3.8
A	WESTERN DIGITAL CORP	15	8	8.25	0.1	1.5

Peripherals

Q	ALLOY COMP	4	1	2.125	-0.3	-10.5
N	AM INTL INC	6	5	5.5	0.3	4.8
Q	AUTO TROL TECH CORP	6	4	4.25	0.0	0.0
Q	BANCTEC INC	18	8	17.5	-0.3	-1.4
Q	CIPHER DATA PRODS INC	11	7	6.625	-0.9	-11.7
A	COGNITRONICS CORP	7	2	7.125	1.1	18.8
Q	CONNOR PERIPHERALS	15	7	12.375	0.3	2.1
A	DATA PRODUCTS CORP	18	9	9.625	0.4	4.1
A	DATA RAM CORP	12	7	9.375	0.1	1.4
N	EASTMAN KODAK CO	52	42	46.75	-0.9	-1.8
N	E M C CORP MASS	6	3	3.875	-0.8	-16.2
N	EMULEX CORP	12	7	6.75	-1.1	-14.3
Q	EVANS & SUTHERLAND	25	13	22	-0.9	-3.8
Q	ICOT CORP	3	1	1.625	0.0	0.0
Q	INTERLEAF INC	10	6	7	0.3	3.7
Q	IOMEGA CORP	5	2	2.75	0.0	0.0
Q	LEE DATA CORP	4	2	2.125	0.1	6.3
Q	MASSTOR SYS CORP	4	2	2.75	0.0	0.0
Q	MAXTOR CORP	12	6	11.25	0.0	0.0
Q	MICROPOLIS CORP	9	3	3.625	-0.3	-6.5
Q	MINISCRIBE CORP	9	1	1.375	-0.5	-26.7
N	MINNESOTA MNG & MFG CO	80	35	75.25	1.4	1.9
Q	PERSONAL COMP PRODUCTS					
Q	INC	6	4	4.063	-0.1	-1.5
Q	PRIAM CORP	2	0	0.25	0.0	-11.0
Q	PRINTRONIX INC	10	7	8.5	0.0	0.0
N	QMS INC	12	6	10.875	-0.1	-1.1
Q	QUANTUM CORP	16	4	14.75	0.8	5.4
N	RECOGNITION EQUIP INC	13	6	6.25	-0.4	-5.7
Q	REXON INC	8	6	7.25	-0.1	-1.7
Q	SEAGATE TECHNOLOGY	16	7	12.125	-0.1	-1.0
N	STORAGE TECH CORP	23	9	12.5	-0.1	-1.0
Q	TANON CORP	2	0	1.063	0.1	13.3
Q	TEKTRONIX INC	24	19	19.25	-0.3	-1.3
Q	TELEVIDEO SYS INC	1	0	0.625	-0.1	-9.2
N	XEROX CORP	69	54	65	0.0	0.0

Leasing Companies

N	CAPITAL ASSOC INTNL INC	9	5	6.75	0.1	1.9
N	COMOISO INC	33	19	31.625	-1.0	-3.1
Q	CONTINENTAL INFO SYS	5	0	0.563	-0.2	-24.9

Singapore, K Mart wear SIM laurels

BY CLINTON WILDER
CW STAFF

ATLANTA — The unlikely tandem of K Mart Corp. and the government of Singapore have two things in common: They handle thousands of financial transactions every day, and their information systems groups have been honored by their peers for conceiving and installing systems to process those



K Mart's Thomas (left) and Carlson

transactions more effectively.

K Mart and the Singapore government received the third annual Society for Information Management (SIM) Partners in Leadership awards at the SIM annual conference last week.

K Mart was honored for its use of Universal Product Code (UPC) scanning, personal computers and satellite network technology to save \$200 million annually in costs and reduce checkout time and excess inventory in its 1,300 stores.

Singapore was a co-winner for Tradenet, a pioneering electronic data interchange (EDI) system that has replaced 40% of the nation's paper transactions for import/export trades in less than one year.

Both winners are examples of senior management deciding its systems were inadequate to support its business

and seeking an IS partnership to turn things around.

K Mart Executive Vice-President and Chief Administrative Officer Joseph R. Thomas took the unprecedented step of hiring the firm's first corporate officer from outside the company when Senior Vice-President of Corporate IS David M. Carlson was brought on board in 1985. "Our systems development was not meeting our goals," Thomas said in videotaped remarks at the SIM awards luncheon. "We had to go outside for help."

The role of chip technology was critical as Carlson led an effort to replace IBM Series/1 minicomputers with IBM Personal Computer ATs as the point-of-sale (POS) controller systems in K Mart's stores. The Intel Corp. 80286-based PCs let K Mart install UPC scanning software and networked more effectively with K Mart's IBM 3683 POS terminals.

With few natural resources, Singapore depends on trading for its economic lifeblood. The Tradenet EDI system saves an estimated \$1 billion annually in reduced paperwork and productivity lost to repetitive processes. It is considered the world's only EDI trading system imple-



Award winners Yeo Seng Teck (left) and Ko Kheng Hwa

mented on a national scale.

To conceive Tradenet, the Singapore Trade Development Board formed a joint project team with the National Computer Board and representatives from relevant trade agencies.

"I was not a great persuader," trade board Chief Executive Officer Yeo Seng Teck said, "but we all shared a vision of enhancing Singapore's competitive edge. The shared vision was the glue."

After two years of development, Tradenet went on-line last

January and is used by some 200 trading companies in Singapore. Using EDI software from IBM, users link to the government's IBM 3090 Model 200 mainframe running MVS/XA.

"The technology was well-established and was certainly less difficult than the organization and business issues," said Ko Kheng Hwa, a divisional director of the computer board. "Getting traders used to the idea of an electronic document that they couldn't see and feel was a real cultural change."

Allstate

FROM PAGE 1

According to one IS worker in the Northbrook headquarters of Allstate, the appointment of Sitter to such a high level speaks well for the company's commitment to information systems. The worker, who asked not to be named, said that bringing in Sitter from the outside did not seem to be a touchy issue among the company's other IS executives.

Sitter will oversee IS in Allstate's three divisions — personal property and casualty, life and business insurance. The current IS chiefs in each division will continue to report to general management within each division. According to Hedien, Sitter will have authority for hardware and systems software purchasing decisions for the three divisions and corporate headquarters and will also be involved in the approval process for all major IS investments.

Sitter joined Northwest Airlines in Minneapolis last year as executive vice-president of administration and CIO; he was among five of the top executives who resigned last week from Northwest parent NWA, Inc. as the airline went through an abrupt shake-up three months after being taken over in a \$3.65 billion buyout. "He's been a very intelligent, effective CIO," said Walter Pemberton, vice-president of communications and

computer services at Northwest.

Prior to Northwest, Sitter worked for 14 years in information systems at Tenneco Corp. in Houston, serving as top IS executive from 1980 to 1988. He joined Tenneco in 1974 after seven years in IS at ITT Corp. in New York. Steve Joens, manager of applications development at Tenneco, Inc., the parent company, said Sitter was a strong leader when he worked



Chevron's Klitten, VP of finance

for the Houston-based company.

"He had a tough job at Tenneco," Joens said of Sitter. "He had to try to decentralize the MIS function, which had all been centralized into a single data center." Part of that job involved cost control. "Any time you are dealing with cost control, people respect what you're trying to do, but they don't necessarily fall in love with you," he added.

Chevron Information Tech-

nology, the oil giant's IS unit, named William Houghton president, effective this week. He replaces Martin Klitten, who was promoted to the top financial job, vice-president of finance, at parent Chevron Corp.

Klitten, 44, held several financial positions within Chevron before heading Concord, Calif.-based Chevron Information Technology beginning in November 1987.

Houghton's promotion takes the opposite path, returning him to his IS roots after his recent experience in finance as assistant secretary at Chevron Corp.

Houghton, 52, became general manager of the communications technology department at Chevron Information Technology in 1985. He joined the unit in 1969 as a research analyst.

Klitten was promoted to replace Chevron's retiring chief financial officer, 64-year-old Leland McGraw.

At Houston-based Shell, Leroy Drury, the former vice-president of information and computer services, retired along with Vice-President of Finance John Jacobsen.

Sloan is a 19-year Shell veteran with experience in IS, finance and administration. He was most recently vice-president of corporate planning.

Unisys layoffs readied, prompt internal rumors

BY ELLIS BOOKER
CW STAFF

BLUE BELL, Pa. — Unisys Corp. may start as early as this month laying off thousands of its workers, the bitter fruit of the 7% to 8% staff reduction plan the company outlined in August.

Although Unisys declined comment on the timing or the nature of the cuts in its work force of 90,000, a source close to the company said the program will be in two passes. One target, the source said, will be the middle managers in Unisys' field branch operation, which will be consolidated as part of a district manager structure.

Also, rumors circulated within Unisys last week that Chairman and Chief Executive Officer W. Michael Blumenthal was asked to resign at a board meeting Sept. 28. A Unisys spokesman contacted Friday said no resignation was offered at the meeting Thursday. Blumenthal rose to his current post in May 1986, when Unisys was formed by the merger of Sperry Corp. and Burroughs Corp.

Unisys said the board added Kenneth A. Macke, chairman of the board and CEO of retailer Dayton Hudson Corp., to its board of directors. Unisys also declared a quarterly dividend of 25 cents per common share.

"I'd be very surprised if Blumenthal had been asked to resign," said George Lindamood, program director of industry service at Gartner Group, Inc. in Stamford, Conn. "I don't think they'd make him a scapegoat." Lindamood said he was unaware of any dissatisfaction with the Unisys CEO's performance and speculated that "even if there was, it would seem they could leave him in place."

Lindamood also noted that radical change was unlikely, given that Blumenthal, 63, recently installed the man many believe will be his successor. James A. Unruh, 48, was elected to president and chief operating officer in August.

Michael Geran, an analyst at Nikko Securities Co. International in New York, speculated that details of the restructuring would likely come out the middle of this month, "coincident with the release of their earnings report."

Geran said Unisys faces "clearly too much plant capacity and too much inventory" and said the cutbacks would be both "direct and indirect."

The "top-to-bottom" review of Unisys' operations, announced Aug. 18, was described by Unisys as an effort to reduce costs by at least \$400 million by the end of the year.

Skepticism over antitrust reform

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — The computer industry is facing some very skeptical members of Congress, including the powerful Rep. Jack Brooks (D-Texas), as it lobbies for relaxation of antitrust laws to aid joint production ventures such as U.S. Memories, Inc.

At a congressional hearing last week, the industry's case for antitrust reform was made by Jack D. Kuehler, president of IBM. "Production joint ventures can be a tool, an important tool, in an age of greater cooperation" that is needed to boost U.S. competitiveness, he said.

Eight trade groups recently formed the Coalition for Joint Manufacturing to support anti-

trust reform legislation, arguing that U.S. companies need the "flexibility to form joint manufacturing ventures that spread risks, pool resources, share technologies and combine production to lower costs."

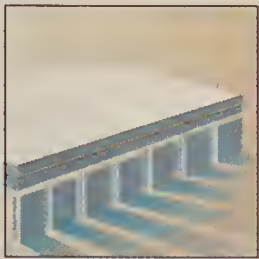
While not opposing the proposal outright, Brooks warned, "What may begin as productive collaboration may end in collusion to drive economic players out of the marketplace."

Brooks is chairman of the U.S. House Committee on the Judiciary, which is growing reluctant to grant exemptions to the antitrust laws because well-meaning exemptions can backfire and hurt competition or con-

sumers, several members said. "Gutting antitrust laws will not solve our trade and competitiveness problems," Rep. Mike Synar (D-Okla.) said.

The committee's skepticism has been fueled by complaints from T. J. Rodgers, president of Cypress Semiconductor Corp., and other Silicon Valley entrepreneurs. They criticized consortiums as government-assisted cartels that unfairly compete against smaller companies [CW, Aug. 7].

Rep. Don Edwards (D-Calif.) defended his reform bill, stating that it does not provide a full exemption but merely reduces the potential monetary risks of an



The cost of commitment

Organizations that want to dabble with IBM's AD/Cycle can do so at a cost of \$15,000 to \$20,000, but those that are completely sold on the merits of the strategy will have to be equally sold on seven pieces of IBM-recommended software that range in price depending on processor size.

The key component, Repository Manager/MVS Version 1 will range in price from a one-time charge of \$94,080, with a monthly license charge of \$1,960, to \$243,000 with a monthly license charge of \$4,500, according to IBM.

Pricing for the other main components falls right into line:

- The Cross System Product/Application Execution, the compiler, ranges from \$5,595, with a monthly charge of \$519, to \$24,030, with a monthly charge of \$805.
- CSP/Application Development, in which the programmer writes the applications, ranges from \$7,625, with a monthly license charge of \$709, to \$32,730, with a monthly charge of \$1,099.

Also, the Workstation Feature for CSP, which runs on the Personal System/2 Model 50 and higher or a Personal Computer AT, use OS/2 Extended Edition 1.2 and requires an additional 1M byte of memory. It carries a one-time charge of \$1,200.

- CSP/370 Runtime Services, which produces Cobol, will cost from \$17,040, with a monthly

charge of \$568, to \$35,530, with a monthly charge of \$987.

- QMF/MVS Version 2 will run with IBM's DB2 and provide prompted query and report-writing capabilities for Repository Manager/MVS users and an interactive bridge to Repository Manager/MVS specification dialogues.

Prices range from a one-time charge of \$49,610, with a monthly charge of \$1,490, to a one-time charge of \$124,100, with a monthly charge of \$2,000.

- Developmate Version 1, Release 1 is designed to be used during the requirements phase of the development cycle and helps design the entity relations in enterprise model.

Prices range from \$30,050, with a monthly charge of \$626, to \$77,760, with a monthly charge of \$1,440.

- Application Development Project Support/Process Mechanism (ADPS/P) and ADPS/Application Development Model (ADPS/M) work together to develop applications. ADPS/P contains dialogues in order to help the developer through the task, and ADPS/M defines the development activities and their relationships. The tools interface to CSP 3.2.1 and work with QMF.

ADPS/P prices range from \$61,500, with a monthly charge of \$2,050, to \$139,650, with a monthly charge of \$2,050. Prices for ADPS/M range from \$30,000, with a monthly charge of \$1,000, to \$68,110, with a \$1,000 monthly charge.

antitrust lawsuit from triple damages to actual damages.

Much of the debate focused on U.S. Memories, a consortium that will use IBM technology to produce dynamic random-access memory (DRAM) chips. Sanford L. Kane, president of U.S. Memories, said his consortium does not need the antitrust relief to survive because it will have a small share of the world DRAM market, though it would make investors more comfortable.

However, Kane and Kuehler argued that other joint production ventures will need the antitrust relief in order to attract capital investments and get off the ground. Kane also said that U.S. Memories is seeking no government financial assistance.

Stop-n-start-ups

Critics said, on the other hand, that antitrust exemptions harm start-up companies. David R. Coehlo, chairman of Vantage

Analysis Systems, Inc. in Fremont, Calif., pointed out that venture capitalists are reluctant to back small start-ups that compete against government-aided consortiums.

"The reason we've got triple damages is so the small guy has a way to get back at the big guy" that engages in overly aggressive tactics, Coehlo added.

He said that Microelectronics & Computer Technology Corp., a consortium given antitrust protection under the National Cooperative Research Act of 1984, is competing directly with his firm in the computer-aided engineering industry.

George Gilder, a conservative author and outspoken critic of consortiums, said that U.S. Memories "will divert \$1 billion of venture capital away from other semiconductor companies."

"Competitiveness springs from competition, not consortia," Gilder said.

AD/Cycle

FROM PAGE 1

marketing at GE Consulting Services Corp. in Rockville, Md. — one of four companies that IBM has designated as service providers for AD/Cycle.

According to Prenoveau, the \$2 million cost assumes that the company is already running a mainframe with both MVS and DB2.

DiNardo argued that companies know they will spend \$2 million by installing AD/Cycle in small pieces. "But if \$2 million gets me 5% programmer productivity, watch how fast I spend it," he said.

Workstation software and hardware alone for a typical operation will cost a company about \$1 million, Prenoveau said. Large shops will have about 50 application developers, each with a workstation running one or more of the available tools and costing about \$20,000.

AD/Cycle will also require even sophisticated "mainframe-based organizations to dedicate staff to manage data administration and to manage workstation local-area networks," said Ed Acly, a software analyst at International Data Corp. in Framingham, Mass.

Million-dollar ticket

Both Acly and Prenoveau said that IBM is recommending that large corporations purchase seven critical and expensive pieces of software that could amount to about \$1 million in fully implemented AD/Cycle systems (see sidebar at left).

In addition, IBM offers a transition management plan that analyzes the company's current environment and, over a two-year period, sets milestones for creating both an AD/Cycle and an Systems Application Architecture-compliant environment.

Acly and Prenoveau said corporations will spend about \$250,000 for the services.

DEC returns serve

BY AMY CORTESE
CW STAFF

Digital Equipment Corp. will fire off its answer to IBM's AD/Cycle strategy tomorrow in Boston with its own computer-aided software engineering (CASE) briefing. The firm is expected to announce an object-oriented interface to CDD Plus, its repository, and an integrated environment for controlling development projects based on Atherton Technology, Inc.'s Software Backplane.

John Markel, president of

Signal Technology, Inc., said, the announcement will be "more than just a dictionary announcement." In addition to the central repository, a set of protocols and conventions will be set forth to make it easier for third-party software vendors and customers to integrate into DEC's CASE environment, he said. Signal will be one of DEC's cooperative marketing partners at the announcement. Markel said his firm will be the first fourth-generation language vendor to implement read and write support of CDD Plus.

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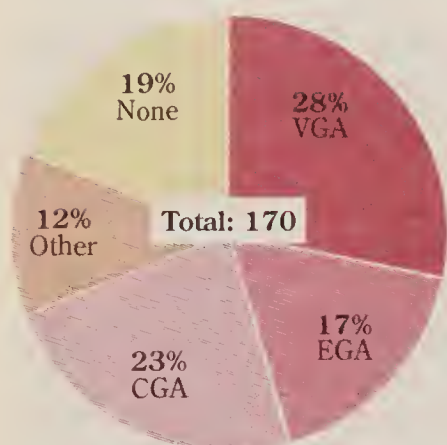


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TRENDS

PC Graphics

How fast are users adopting new graphic hardware and software? International Data Corp.'s quarterly audits of large PC installations show their usage as slow coming.



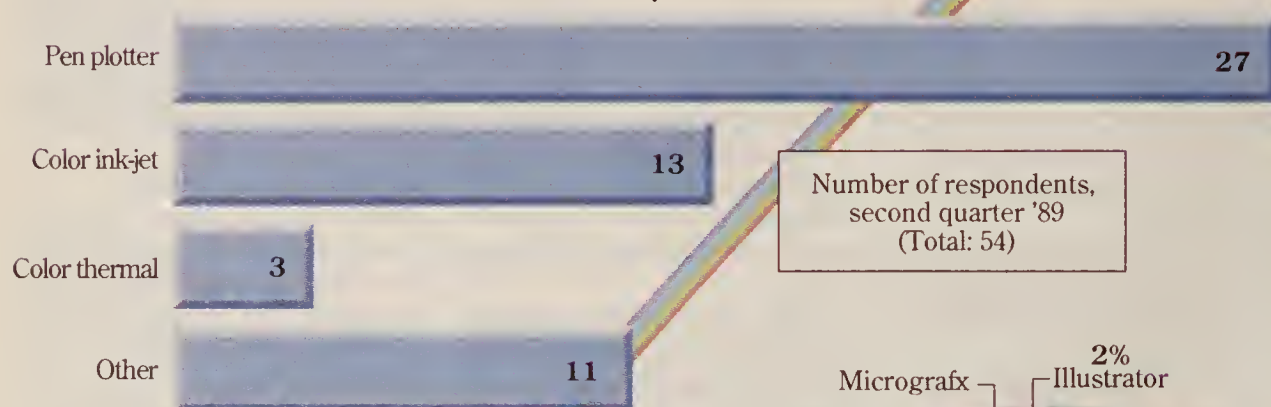
Types of graphics boards installed

Introduced with IBM's Personal System/2 family, VGA has surpassed all other graphic adapters.

Percent of respondents, second quarter '89

Type of color output device currently used

With more advanced technology available, the pen plotter continues to be the most popular color output option.

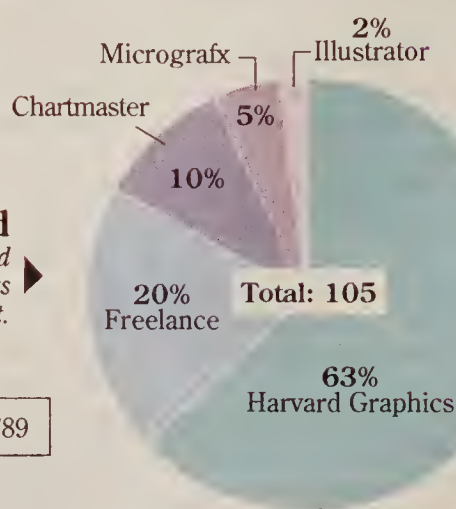


Number of respondents, second quarter '89 (Total: 54)

Graphics software installed

At the expense of packages like Freelance and Chartmaster, Harvard Graphics continues its dominance in the graphic software market.

Percent of respondents, second quarter '89



SOURCE: INTERNATIONAL DATA CORP., FRAMINGHAM, MASS.

CW CHARTS: FRANK C. O'CONNELL

NEXT WEEK

What can IS expect in the 1990s? It won't be smooth sailing. We'll ride through waves of corporate turmoil caused by global markets, cost control and labor shortages. Find out how to weather the storm in our Special Report on IS in the 1990s, which features such experts as MIT's Michael Dertouzos and Harvard's Michael Porter.



KATHERINE MAHONEY

Suffering from that time-honored complaint, application backlog? Some organizations that are afflicted with code lag are starting to examine a less-than-obvious solution for speeding up applications development — software testing tools. Learn more about these corrective tools and how they can be used in next week's In Depth.

INSIDE LINES

Don't hold your breath

Speculation was thick last week on the possible introduction this month of the follow-on 3090, the so-called A series or G series. IBM wouldn't comment, but various users and analysts said a late October announcement is not out of the question. However, those same sources said the timing of this mainframe introduction is critical and added that if the system is not ready to go, IBM won't risk a fourth-quarter announcement.

'That's Unix, not eunuchs!'

Prime Computer last week vehemently denied reports that it is in the process of deleting Unix from its future. Rumors to that effect gained currency midweek, when a Boston newspaper reported that Prime had laid off a critical complement of Unix engineers. "We still have Unix products, and they're being supported in both engineering and marketing," a spokesman said. However, according to a source within Prime, tales of an imminent mass exodus at the senior executive level are likely to be true, as many of the executives being offered the option of casting their lot with the J. H. Whitney & Co.-owned Prime are leery about their fit in the new scheme of things, which should be made clear to all in about two weeks. In addition, Prime confirmed that the 2,500 body-count figure being bandied about "is reasonable."

Down the street

Not far from Prime, layoffs appear to be looming once again for Data General, where cost-cutting measures may reduce the staff by up to 1,200 employees. Company spokesman Jim Dunlap refused to confirm any specific numbers but acknowledged that "cost control is a way of life at DG as it is throughout the industry."

Playing in harmony

Sybase will be busy in New York this week where it will announce a new version of its DBMS and new platforms to support it, along with a discussion of its relationship with Lotus. The firm is also expected to talk about distributed computing technology that it has submitted to the Open Software Foundation.

Shining up

Clarix is expected to unwrap plans at a press conference tomorrow for better integrating its line of Apple-developed software for the Macintosh. Part and parcel of that announcement is the introduction of a networked version of Macwrite that is compatible with 3Com, Novell and Apple networks. Clarix, the Apple software spin-off, will host the big guns from all three: Bob Metcalfe from 3Com, Don Casey from Apple and Darrell Miller from Novell.

Efficiency in networking?

More layoffs at Novell and Excelan. In a drive to cut operating costs and as part of a continuing shift away from hardware, Novell has snipped 2% of its work force, or about 50 sales personnel located in 17 cities. The cuts have fueled the jitters in Utah, where more layoffs are expected.

Pick a font

As Microsoft CEO Bill Gates and John Sculley prepare to do battle against Adobe's Postscript page-description language, other vendors are lining up. While IBM remains uncommitted, Adobe CEO John Warnock will be on hand when DEC CEO Ken Olsen delivers a keynote speech at Unix Expo in November. Sources say Olsen will pledge support of Postscript, which means that for once, DEC and Apple aren't in agreement.

We hoard these gems: In June, Dr. Bob Carberry, IBM's Micro Channel evangelist and vice-president of its Entry Systems Division, joked at a NY PC User Group meeting that IBM had considered at one point becoming a nonprofit computer corporation, but that given the rise in the past quarterly earnings, "We'll have to hold off for a while." Maybe now's the time to go for it. If you can do better, call the hot line at 800-343-6474 or 508-879-0700 and get News Editor Pete Bartolik a-chucklin'.

How to comply with SAA without actually waiting.

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vision to become a reality. To put mission-critical applications on hold is to risk your competitive advantage in the marketplace.

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